

Cognos Corporation



State of Utah Request for Proposal State Cooperative Contract

Legal Company Name (include d/b/a if applicable) Cognos Corporation		Federal Tax Identification Number 94-2763235	State of Utah Tax ID Number NA	
Ordering Address 15 Wayside Rd.		City Burlington	State MA	Zip Code 01803
Remittance Address (if different from ordering address)		City	State	Zip Code
Type <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Proprietorship <input type="checkbox"/> Government	Company Contact Person Tim Deskin			
Telephone Number (include area code) 303-229-1937	Fax Number (include area code) 781-345-3146	Email Address tim.deskin@cognos.com		
Discount Terms (for bid purposes, bid discounts less than 30 days will not be considered) Net 30		Days Required for Delivery After Receipt of Order (see attached for any required minimums) 1-3 Days		
Brand/Trade Name Cognos 8		Price Guarantee Period (see attached specifications for any required minimums) 30 days - 12 Months depending		
Minimum Order See Price quote		Company's Internet Web Address www.cognos.com		
The undersigned certifies that the goods or services offered are produced, mined, grown, manufactured, or performed in Utah. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> . If no, enter where produced, etc. Software development in MA.				
Offeror's Authorized Representative's Signature Tim Deskin		Print or type name and title Tim Deskin	Date 2/7/2007	
State of Utah Division of Purchasing Approval Douglas G. Richins, Director		Date <i>6/20/07</i>	Contract Number MA255	

Note: When approved and signed by the State Director of Purchasing, this document becomes the contract.

REQUEST FOR PROPOSAL - INSTRUCTIONS AND GENERAL PROVISIONS STATE COOPERATIVE CONTRACT



STATE OF UTAH COOPERATIVE CONTRACT AMENDMENT

AMENDMENT # **1**

CONTRACT # **MA255**

Original Starting Date: **June 20, 2007**

Expiration Date : **June 20, 2010**

TO BE ATTACHED AND MADE PART OF the specified contract by and between the State of Utah Division of Purchasing and
Cognos Corporation

(Referred to as CONTRACTOR)

BOTH PARTIES AGREE TO AMEND THE CONTRACT AS FOLLOWS:

Amended Expiration Date: **No Change**

Effective Date of Amendment: **June 20, 2007**

Potential Renewal Options Remaining: **Two Years**

The contract is amended to:

- 1. Attachment A: Standard Contract Terms and Conditions have been revised and approved by both parties. A copy of the revised terms and conditions are attached.**
- 2. Attachment B: Cognos General Software License Support & Services Terms have been revised and approved by both parties. A copy of the revised terms and conditions are attached.**
- 3. Contract MA255 consists of: 1. RFP JG7023; 2. Cognos response to RFP JG7023; and this Amendment 1.**

Please provide the following contact information.

	Name	Phone Number	Email Address
General Contact			
Sales Contact	Timothy Deskin		timothy.deskin@cognos.com
Quarterly Report Contact	Timothy Deskin		timothy.deskin@cognos.com

All other terms and conditions in the original contract remain the same.

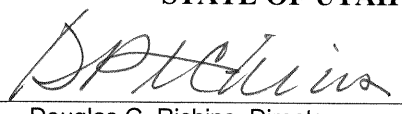
IN WITNESS WHEREOF, the parties sign and cause this contract to be executed.

CONTRACTOR

STATE OF UTAH


Contractor's Signature


Date


Douglas G. Richins, Director
State of Utah Division of Purchasing


Date

Contractor's Name (Print) **Kevin P. Shone**
Vice President
Americas Finance & Administration

Title (Print)

Purchasing Agent
Jared Gardner

Phone #
538-3342

e-mail
jaredgardner@utah.gov

Fax #
801-538-3882

3/7/2006

Standard Contract Terms and Conditions (Revised)

State of Utah, State Cooperative Contract

1. AUTHORITY: Provisions of this contract are pursuant to the authority set forth in 63-56, Utah Code Annotated, 1953, as amended, Utah State Procurement Rules (Utah Administrative Code Section R33), and related statutes which permit the STATE to purchase certain software, specified services, and other approved purchases for the STATE.

2. CONTRACT JURISDICTION, CHOICE OF LAW, AND VENUE: The provisions of this contract shall be governed by the laws of the State of Utah. The parties will submit to the jurisdiction of the courts of the State of Utah for any dispute arising out of this Contract or the breach thereof. Venue shall be in Salt Lake City, in the Third Judicial District Court for Salt Lake Co.

3. LAWS AND REGULATIONS: The Contractor and any and all supplies, services, equipment, and construction proposed and furnished under this contract will comply fully with all applicable Federal and State laws and regulations.

4. RECORDS ADMINISTRATION: The Contractor will maintain, or supervise the maintenance of all records necessary to properly account for the payments made to the Contractor for costs authorized by this contract. These records will be retained by the Contractor for at least four years after the contract terminates, or until all audits initiated within the four years have been completed, whichever is later. The Contractor agrees to allow the State and Federal auditors, and State agency staff, access to all the records to this contract, for audit and inspection, and monitoring of services. Such access will be during normal business hours, or by appointment.

5. CONFLICT OF INTEREST: Contractor certifies that it has not offered or given any gift or compensation prohibited by the laws of the State of Utah to any officer or employee of the STATE or participating political subdivisions to secure favorable treatment with respect to being awarded this contract.

6. INDEPENDENT CONTRACTOR: Contractor will be an independent Contractor, and as such will have no authorization, express or implied to bind the STATE to any agreements, settlements, liability or understanding whatsoever, and agrees not to perform any acts as agent for the STATE, except as expressly set forth herein. Compensation stated herein will be the total amount payable to the Contractor by the STATE. The Contractor will be responsible for the payment of all income tax and social security tax due as a result of payments received from the STATE for these contract services. Persons employed by the STATE and acting under the direction of the STATE will not be deemed to be employees or agents of the Contractor.

7. INDEMNITY CLAUSE: Except with respect to intellectual property claims which are covered under the terms addressed in Section 9 of Attachment B, the Contractor will release, protect, indemnify and hold the STATE and the respective political subdivisions and their officers, agencies, employees, harmless from and against any damage, cost or liability, including reasonable attorney's fees for any or all injuries to persons, property or claims for money damages that directly arise from acts or omissions of the Contractor, his employees or subcontractors or volunteers. . State shall notify Contractor promptly of the claim and give Contractor sole control of the defense and negotiations for its settlement or compromise for third party claims.

8. EMPLOYMENT PRACTICES CLAUSE: The Contractor agrees to abide by the provisions of Title VI and VII of the Civil Rights Act of 1964 (42USC 2000e) which prohibits discrimination against any employee or applicant for employment or any applicant or recipient of services, on the basis of race, religion, color, or national origin; and further agrees to abide by Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90 which prohibits discrimination on the basis of age; and Section 504 of the Rehabilitation Act of 1973, or the Americans with Disabilities Act of 1990 which prohibits discrimination on the basis of disabilities. Also, the Contractor agrees to abide by Utah's Executive Order, dated March 17, 1993, which prohibits sexual harassment in the work place.

9. SEVERABILITY: If any provision of this contract is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions will not be affected; and the rights and obligations of the parties will be construed and enforced as if the contract did not contain the particular provision held to be invalid.

10. RENEGOTIATION OR MODIFICATIONS: The terms of this contract will not be waived, altered, modified, supplemented or amended in any manner whatsoever without prior written approval of the State Director of Purchasing. Automatic renewals will not apply to this contract.

11. DEBARMENT: The Contractor certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract), by any governmental department or agency. If the Contractor cannot certify this statement, attach a written explanation for review by the STATE. The Contractor must notify the State Director of Purchasing within 30 days if debarred by any governmental entity during the Contract period.

12. TERMINATION: Unless otherwise stated in any special terms and conditions, this contract may be terminated, with cause by either party, in advance of the specified termination date, upon written notice being given by the other party. The party in violation will be given ten (10) working days after notification to correct and cease the violations, after which the contract may be terminated for cause. This contract may be terminated without cause, in advance of the specified expiration date, by either party, upon 90 days prior written notice being given the other party. On termination of this contract, all accounts and payments will be processed according to the financial arrangements set forth herein for products received and approved services rendered to date of termination.

13. NONAPPROPRIATION OF FUNDS: The Contractor acknowledges that the State cannot contract for the payment of funds not yet appropriated by the Utah State Legislature. If funding to the State is reduced due to an order by the Legislature or the Governor, or is required by State law, or if federal funding (when applicable) is not provided, the State may terminate this contract or proportionately reduce the services and purchase obligations from the State upon 30 days written notice. In the case that funds are not appropriated or are

reduced, the State will reimburse Contractor for products delivered or services performed through the date of cancellation or reduction, and the State will not be liable for any future commitments, penalties, or liquidated damages.

14. TAXES: Proposal prices will be exclusive of state sales, use and federal excise taxes. The State of Utah's sales and use tax exemption number is E33399. The tangible personal property or services being purchased are being paid from STATE funds and used in the exercise of that entity's essential functions. If the items being purchased are construction materials, they will be converted into real property by employees of this government entity, unless otherwise stated in the contract, or contract orders. The State of Utah's Federal excise exemption number is 87-780019K.

15. WARRANTY: The Contractor agrees to warrant and assume responsibility for all products (including hardware, firmware, and/or software products) that it licenses, contracts, or sells to the State of Utah under this contract for a period of sixty (60) days, unless otherwise specified and mutually agreed upon elsewhere in this contract. The Contractor (seller) acknowledges that all warranties granted to the buyer by the Uniform Commercial Code of the State of Utah apply to this contract. Product liability disclaimers and/or warranty disclaimers from the seller are not applicable to this contract unless otherwise specified and mutually agreed upon elsewhere in this contract. In general, the Contractor warrants that: (1) the product will live up to all specific claims that the manufacturer makes in their advertisements, (2) the product will be suitable for the ordinary purposes for which such product is used, (3) the product will be suitable for any special purposes that the STATE has relied on the Contractor's skill or judgment to consider when it advised the STATE about the product, (4) the product has been properly designed and manufactured, and (5) the product is free of significant defects or unusual problems about which the STATE has not been warned. Remedies available to the STATE include the following: The Contractor will repair or replace (at no charge to the STATE) the software product whose nonconformance is discovered and made known to the Contractor in writing. If the repaired and/or replaced product proves to be inadequate, or fails of its essential purpose, the Contractor will refund the full amount of any payments that have been made. Nothing in this warranty will be construed to limit any rights or remedies the State of Utah may otherwise have under this contract. Referenced also in Section 6 of Attachment 1.

16. PARTICIPANTS: This is a contract to provide the State of Utah government departments, institutions, agencies and political subdivisions (i.e., colleges, school districts, counties, cities, etc.) with the goods and/or services described in the proposal.

17. POLITICAL SUBDIVISION PARTICIPATION: Participation under this contract by political subdivisions (i.e., colleges, school districts, counties, cities, etc.) will be voluntarily determined by the political subdivision. The Contractor agrees to supply the political subdivisions based upon the same terms, conditions and prices.

18. QUANTITY ESTIMATES: The STATE does not guarantee to purchase any amount under the contract to be awarded. Estimated quantities are for proposing purposes only and are not to be construed as a guarantee to purchase any amount.

19. DELIVERY: The prices proposed will be the delivered price to any state agency or political subdivision. Unless otherwise specified by the State, all deliveries will be F.O.B. destination with all transportation and handling charges paid by the Contractor. Responsibility and liability for loss or damage will remain with Contractor until final inspection and acceptance when responsibility will pass to the Buyer except as to latent defects, fraud, and Contractor's warranty obligations. The minimum shipment amount will be found in the special terms and conditions. Any order for less than the specified amount is to be shipped with the freight prepaid and added as a separate item on the invoice. Any portion of an order to be shipped without transportation charges that is back ordered will be shipped without transportation charges.

20. REPORTS: The Contractor will submit quarterly reports to the State Purchasing Agent showing the quantities and dollar volume of purchases by each agency and political subdivision.

21. PROMPT PAYMENT DISCOUNT: Offeror may quote a prompt payment discount based upon early payment; however, discounts offered for less than 30 days will not be considered in making the award. The prompt payment discount will apply to payments made with purchasing cards and checks. The date from which discount time is calculated will be the date a correct invoice is received or receipt of shipment, whichever is later; except that if testing is performed, the date will be the date of acceptance of the merchandise.

22. FIRM PRICES: Unless otherwise stated in the special terms and conditions, for the purpose of award, offers made in accordance with this solicitation must be good and firm for a period of ninety (90) days from the date of proposal opening.

23. PRICE GUARANTEE, ADJUSTMENTS: The contract pricing resulting from this proposal will be guaranteed for the period specified. Following the guarantee period, any request for price adjustment must be for an equal guarantee period, and must be made at least 30 days prior to the effective date. Requests for price adjustment must include sufficient documentation supporting the request. Any adjustment or amendment to the contract will not be effective unless approved by the State Director of Purchasing. The STATE will be given the immediate benefit of any decrease in the market, or allowable discount.

24. ORDERING AND INVOICING: Orders will be placed by the using agencies directly with the Contractor. All orders will be shipped promptly in accordance with the delivery guarantee. The Contractor will then promptly submit invoices to the ordering agency. The STATE contract number and the agency ordering number will appear on all invoices, freight tickets, and correspondence relating to the contract order. The prices paid by the STATE will be those prices on file with the Division of Purchasing. The STATE has the right to adjust or return any invoice reflecting incorrect pricing.

25. PAYMENT: Payments are normally made within 30 days following the date the order is delivered or the date a correct invoice is received, whichever is later. After 45 days the Contractor may assess overdue account charges up to a maximum rate of one percent per month on the outstanding balance. Payments may be made via a State of Utah (or political subdivision) "Purchasing Card" (major credit card). All payments to the Contractor will be remitted by mail unless paid by Purchasing Card.

26. MODIFICATION OR WITHDRAWAL OF PROPOSALS: Proposals may be modified or withdrawn prior to the time set for the opening of proposals. After the time set for the opening of proposals, no proposals may be modified or withdrawn.

27. PROPOSAL PREPARATION COSTS: The STATE is not liable for any costs incurred by the offeror in proposal preparation.

28. INSPECTIONS: Intentionally Deleted.

29. PATENTS, COPYRIGHTS, ETC.: The Contractor will release, indemnify and hold the Buyer, its officers, agents and employees harmless from liability of any kind or nature, including the Contractor's use of any copyrighted or un-copyrighted composition, secret process, patented or un-patented invention, article or appliance furnished or used in the performance of this contract.

30. ASSIGNMENT/SUBCONTRACT: Contractor will not assign, sell, transfer, subcontract or sublet rights, or delegate responsibilities under this contract, in whole or in part, without the prior written approval of the State Director of Purchasing.

31. DEFAULT AND REMEDIES: Any of the following events will constitute cause for the STATE to declare Contractor in default of the contract: 1. Nonperformance of contractual requirements; 2. A material breach of any term or condition of this contract. The STATE will issue a written notice of default providing a period in which Contractor will have an opportunity to cure. Time allowed for cure will not diminish or eliminate Contractor's liability for liquidated or other damages. If the default remains, after Contractor has been provided the opportunity to cure, the STATE may do one or more of the following: 1. Exercise any remedy provided by law; 2. Terminate this contract and any related contracts or portions thereof; 3. Suspend Contractor from receiving future proposal solicitations.

32. FORCE MAJEURE: Neither party to this contract will be held responsible for delay or default caused by fire, riot, acts of God and/or war which is beyond that party's reasonable control. Either party may terminate this contract after determining such delay or default will reasonably prevent successful performance of the contract.

33. HAZARDOUS CHEMICAL INFORMATION: The Contractor will provide one set of the appropriate material safety data sheet(s) and container label(s) upon delivery of a hazardous material to the user agency. All safety data sheets and labels will be in accordance with each participating state's requirements.

34. NON-COLLUSION: By signing the proposal, the offeror certifies that the proposal submitted has been arrived at independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other vendor of materials, supplies, equipment or services described in the Solicitation, designed to limit independent proposing or competition.

35. PUBLIC INFORMATION: Except as identified in writing and expressly approved by the State Division of Purchasing, Contractor agrees that the contract and related Sales Orders and Invoices will be public documents, as far as distribution of copies, and Contractor gives the STATE express permission to make copies of the contract, the response to the solicitation, and related Sales Orders and Invoices in accordance with the State of Utah Government Records Access and Management Act. The permission to make copies as noted will take precedence over any statements of confidentiality, proprietary information, or copyright information.

36. PROCUREMENT ETHICS: The Contractor understands that a person who is interested in any way in the sale of any supplies, services, construction, or insurance to the State of Utah is violating the law if the person gives or offers to give any compensation, gratuity, contribution, loan or reward, or any promise thereof to any person acting as a procurement officer on behalf of the State, or who in any official capacity participates in the procurement of such supplies, services, construction, or insurance, whether it is given for their own use or for the use or benefit of any other person or organization (63-56-1002, Utah Code Annotated, 1953, as amended).

37. ENERGY CONSERVATION AND RECYCLED PRODUCTS: The contractor is encouraged to offer Energy Star certified products or products that meet FEMP (Federal Energy Management Program) standards for energy consumption. The State of Utah also encourages contractors to offer products that are produced with recycled materials, where appropriate, unless otherwise requested in this solicitation.

38. CONFLICT OF TERMS: Contractor Terms and Conditions that apply must be in writing and attached to the contract. No other Terms and Conditions will apply to this contract including terms listed or referenced on a Contractor's website, terms listed in a Contractor quotation/sales order, etc. In the event of any conflict in the contract terms and conditions, the order of precedence shall be: 1. Attachment A: State of Utah Standard Contract Terms and Conditions; 2. State of Utah Contract Signature Page(s); 3. Additional State Terms and Conditions; 4. Contractor Terms and Conditions.

39. LOCAL WAREHOUSE AND DISTRIBUTION: Intentionally Deleted.

40. ENTIRE AGREEMENT: This Agreement, including all Attachments, and documents incorporated hereunder, and the related State Solicitation constitutes the entire agreement between the parties with respect to the subject matter, and supersedes any and all other prior and contemporaneous agreements and understandings between the parties, whether oral or written. The terms of this Agreement shall supersede any additional or conflicting terms or provisions that may be set forth or printed on the Contractor's work plans, cost estimate forms, receiving tickets, invoices, or any other related standard forms or documents of the Contractor that may subsequently be used to implement, record, or invoice services hereunder from time to time, even if such standard forms or documents have been signed or initialed by a representative of the State. The parties agree that the terms of this Agreement shall prevail in any dispute between the terms of this Agreement and the terms printed on any such standard forms or documents, and such standard forms or documents shall not be considered written amendments of this Agreement.

Revision date: 6/15/07

Attachment B
COGNOS GENERAL SOFTWARE LICENSE,
SUPPORT & SERVICES TERMS ("Terms or Attachment B")

1.0 GENERAL TERMS

1.1 These Terms, effective the 20th day of June, 2007 ("Effective Date"), govern the license by Licensee of Cognos software programs in object code form ("Software"), and the related user manuals and documentation, in hard copy or electronic format ("Related Documentation"), as well as the provision of support for the Software ("Support") and other services relating to the Software ("Services"). In these Terms, unless otherwise stated, the word "Software" includes "Related Documentation".

1.2 Software, Support and Services will be provided to Licensee, pursuant to a separate or any subsequent document referencing these Terms executed by both parties ("Order Agreement"). Each Order Agreement will be subject to these Terms.

2.0 SOFTWARE LICENSE

2.1 Cognos grants to Licensee a perpetual, non-exclusive, non-transferable (except as otherwise provided herein) license to use the Software described in an Order Agreement in the applicable jurisdiction. Each copy of the Software and any upgrade or new release of the Software provided to Licensee is subject to the provisions of these Terms. Cognos will deliver to Licensee a set of master media for the current version of each item of Software from which Licensee may copy the Software as licensed.

2.2 Licensee's use of Software is limited to the hardware computers, CPU's or servers), the number of copies or users, and such other restrictions, as are set forth in an Order Agreement, except that additional copies may be made for archival or back-up purposes only. Licensee is responsible for installing the Software and for copying and installing any upgrades or new releases of the Software. Licensee may purchase additional copies of Related Documentation at mutually agreed upon rates.

2.3 Except as otherwise provided in an Order Agreement, Licensee will use the Software only for its own internal data processing purposes, and Licensee will not sublicense, distribute or otherwise make the Software available to any unrelated third party (including, without limitation, any contractor, franchisee, agent or dealer) without first obtaining the written agreement of (a) Cognos to that use which permission shall not be unreasonably withheld, and (b) such third party to comply with these Terms.

2.4 Licensee may distribute or make the Software available to any entities over which the Licensee exercises effective control ("Affiliates"). The term "control" means the possession, direct or indirect, of the power to direct or cause the direction of management and policies, whether through the ownership of voting shares or by contract. Additional copies/users of the Software for use by Affiliates may be either licensed by Licensee on behalf of Affiliates named in an Order Agreement (for which the Licensee will be jointly and severally liable) or an Affiliate may execute a separate Order Agreement subject to these Terms. This clause will apply to "Individual Licensees". Each State agency and political subdivisions will be considered "Individual Licensees" under the contract. As an Individual Licensee, they will be responsible for their own charges, fees, and liabilities, and they shall be subject to the terms and conditions of the Contract.

3.0 SUPPORT & SERVICES

3.1 Cognos will provide the level of Support for the Software set forth in the Order Agreement in accordance with the prevailing Cognos Support guide. The Cognos Support guide is a document issued by Cognos describing Support options and procedures and may be amended from time to time by Cognos. Any changes to the Cognos Support guide shall become effective upon the next annual support term. Requests for Support will be directed through the Licensee's authorized contacts to the Cognos Support Centers identified in the Cognos Support guide. Support will commence on delivery of the Software to Licensee. Licensee may cancel Support at any time by giving Cognos not less than 30 days written notice and Licensee shall receive a prorated refund of any unused support services after the expiration of the 30 day notice period.

3.2 Cognos will perform the Services (consulting, training, education or other Services), if any, described in an Order Agreement. Cognos may assign the performance of any Services to any contractor, with the consent of Licensee (which will not be unreasonably withheld); however, the invoices will be sent by Cognos and payments will be paid to Cognos. Cognos does not guarantee any estimates but will notify Licensee as soon as practicable if an estimate will be exceeded. Licensee may cancel any Service by providing ten (10) days written notice to Cognos. Licensee will pay for Services performed before termination and will be liable to pay for training or education cancelled, which was scheduled inside such ten (10) day period.

3.3 Cognos retains all right, title and interest in any software, documentation or other works provided or developed as a result of performing Services ("Works"). Cognos grants Licensee a perpetual, non-exclusive, nontransferable license to use and modify the Works solely for Licensee's internal purposes and not to sublicense, distribute or make available to third parties. Either party may (a) independently develop works

competitive with or similar to the Works, and (b) make use of the know-how acquired, principles learned or experience gained during the performance of the Services.

3.4 For a period ending six (6) months after the completion of any Services, Licensee will not directly or indirectly solicit or induce away from the other any employee or sub-contractor of the other who has provided those Services. If an employee or sub-contractor applies for a general public recruitment, that will not be considered a breach of this term.

4.0 FEES & CHARGES

4.1 Licensee will pay Cognos the fees, charges or other amounts specified in an Order Agreement within thirty (30) days of date of receipt of an invoice. Cognos may issue an invoice: (a) upon the shipment of Software or Related Documentation, (b) in advance of the provision of Support or Services unless otherwise set forth in an Order Agreement or applicable statement of work executed by both parties. Licensee shall pay a service charge on overdue accounts equal to the lesser of 1% per month or the maximum legal interest rate.

4.2 Shipping costs and all sales, value-added and other taxes relating to Licensee's payments to Cognos for Software, Related Documentation, Support and/or Services, excluding taxes on the income of Cognos, will be paid by Licensee. To the extent Licensee is claiming exemption from any applicable taxes, Licensee shall provide Cognos with a valid exemption number or certificate

5.0 CONFIDENTIAL INFORMATION

5.1 In the course of their dealings, the parties may disclose to one another confidential information relating to their business ("Confidential Information"). Neither party will disclose the other party's Confidential Information to any third party without the prior written consent of the other party, nor will a party make use of any of the other party's Confidential Information except in the performance of rights or obligations under these Terms. Each party will use at least the same degree of care to avoid disclosure of the other party's Confidential Information as it uses with respect to its own Confidential Information, but in no event shall less than reasonable care be used.

5.2 Confidential Information does not include information: (a) generally available to or known to the public, (b) previously known to the recipient without any obligation of confidentiality, (c) independently developed by the recipient outside the scope of these Terms without any use of the other party's Confidential Information, (d) lawfully disclosed to the recipient by a third party under no obligation of confidentiality, or (e) disclosed pursuant to a valid court order or as required by a judicial court or tribunal of competent jurisdiction.

6.0 WARRANTY

6.1 Cognos warrants that: (a) it has the right to grant the license to use the Software as set out in these Terms; (b) for a period of sixty (60) days following the initial delivery of the Software, or of any new release of the Software, to Licensee: (i) the Software will perform in conformity with its Related Documentation, and (ii) the media provided by Cognos will be free of defects in workmanship; (c) there are no data issues that will impair the reporting of data or the proper functioning of the Software in accordance with its specifications before, during, or after the year 2000, including February 29, 2000, excluding any impairment caused, present or inherent in the data, database or native file system that the Software accesses (including, but not limited to, dates or date formats that are not century aware); (d) the Software will function in accordance with its Related Documentation in each of the currencies, including the Euro, constituting the European Monetary Union ("EMU"), and enable a user to process its data in accordance with the legal framework implementing the EMU, excluding any malfunction caused, present or inherent in the data, database or native file system that the Software accesses; (e) the Software and the medium on which it was originally provided to Licensee is free from any virus at the time of delivery; and (f) Support and Services will be provided with reasonable skill and care conforming to generally accepted software industry standards.

6.2 THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE.

6.3 If the above warranties are breached, Cognos will, at its option and at no cost to Licensee, (a) provide remedial services necessary to enable the Software, Support or Services to conform to the warranty, or (b) replace any defective Software or media, or (c) refund amounts paid in respect of the defective Software, Support or Services. Cognos' warranty obligations will only extend to material errors that can be demonstrated to exist in an unmodified version of the Software except where the modifications were carried out by Cognos or with its approval. Licensee will notify Cognos promptly in writing of any breach of warranty. Licensee will provide Cognos with a reasonable opportunity to remedy any breach and reasonable assistance in remedying any defects. The remedies set out in this subsection are the Licensee's sole remedies for breach of the above warranties.

6.4 In certain jurisdictions some or all of the provisions in this Section may not be effective or the applicable law may mandate a more extensive warranty in which case the applicable law will prevail over these Terms.

7.0 LIMITATION OF LIABILITY

7.1 Cognos will not be liable to Licensee for loss of profits, or special, indirect, incidental, consequential or exemplary damages, including costs or legal expenses, in connection with the supply, use or performance of the Software or the performance of its other obligations pursuant to these Terms, even if it is aware of the possibility of the occurrence of such damages. In certain jurisdictions the foregoing limitations may not be effective, in which case the applicable law will prevail over these Terms.

7.2 In any event, the total liability of Cognos (including any licensors of products forming part of the Software) to Licensee for any claim under these Terms or any Order Agreement, whether it arises by statute, contract or otherwise, will not exceed the amounts paid to Cognos by Licensee under these Terms or any Order Agreement for the Software, Support or Services which form the subject of the claim. The foregoing limit does not apply to (i) the indemnity given in Section 9, or (ii) death or personal injury arising from negligence of Cognos, or (iii) in respect of accidental loss of or damage to Licensee's tangible property, to the extent caused by the negligence of Cognos, its employees or subcontractors. In the event of accidental loss of or damage to Licensee's tangible property, to the extent caused by the negligence of Cognos, its employees or subcontractors, the limit of liability is \$2,000,000.

8.0 PROPRIETARY RIGHTS

Licensee acknowledges Cognos' representation that the Software contains confidential and proprietary information and trade secrets belonging to Cognos and its licensors, and that title in and rights to the Software remains exclusively with Cognos. Licensee's rights to the Software are strictly limited to those granted in these Terms. Licensee will not decompile, disassemble or otherwise reverse engineer the Software. If the foregoing provision is prohibited by applicable law, Licensee will provide Cognos with advance written notification of (a) its intention to decompile, disassemble or otherwise reverse engineer the Software, and (b) the nature of the work involved. Cognos will be given the right of first refusal to perform such work at its prevailing rates and prices.

9.0 INTELLECTUAL PROPERTY INDEMNIFICATION

Cognos will indemnify, defend and hold Licensee harmless against any claims, legal actions, losses and other expenses arising out of or in connection with any claims that the Software infringes or violates any intellectual property right of any third party ("Claim"), on the condition that Licensee notifies Cognos promptly of the Claim and gives Cognos sole control of the defense and negotiations for its settlement or compromise. If Licensee is, or may become, prohibited from continued use of any Software by reason of an actual or anticipated Claim, Cognos will use its reasonable efforts to (a) obtain for Licensee the right to use the Software, or (b) replace or modify such Software so that it is no longer subject to a Claim, but performs the same functions in an equivalent manner. If neither of the foregoing options are feasible in Cognos' sole discretion, Cognos will refund to Licensee the unused portion of the license fees paid in respect of the Software (determined by depreciating the license fees paid on a straight-line basis over three years) and any corresponding unused fees paid in respect of Support. Cognos will have no liability for any Claim based on (i) use of other than a prevailing release of the Software (if the Claim could have been avoided by that release and Licensee has been so notified), or (ii) any use or modification of Software not approved in writing by Cognos. THIS SECTION STATES THE ENTIRE RESPONSIBILITY OF COGNOS CONCERNING CLAIMS.

10.0 TERMINATION

Either party may terminate these Terms if the other party fails to remedy a breach of any material obligation under these Terms or any Order Agreement within fifteen (15) days of receiving written notice from the other party detailing such breach. If the termination is related to other than a material breach by Licensee, Licensee shall continue to have the right to use Software licensed prior to the date of termination. Upon termination, Licensee shall continue to be liable for any obligations arising, liabilities accrued or amounts payable under all Order Agreements executed prior to termination. In addition to any other remedies, Cognos may seek injunctive relief for any breach of these Terms or any Order Agreement by Licensee (or any Affiliate). Sections 2, 3.1, 5, 7, 8 and 11 of these Terms shall survive the termination of this Agreement.

11.0 AUDIT RIGHTS

Individual Licensee will keep accurate records of the number of copies of the Software made and distributed, the number of end users of the Software and their location. Cognos may enter Licensee's premises during business hours on five (5) business days

notice for the purpose of examining, or having examined (at Cognos' own expense), Licensee's relevant books, records and computers to verify Licensee's fulfillment of its obligations under these Terms and/or any applicable Order Agreement.

12.0 GENERAL

12.1 All notices pursuant to these Terms will be in writing and given by hand delivery, registered mail or certified mail (postage prepaid) to the other party at the address appearing on the Order Agreement. Licensee will promptly give written notice of any change in its address or addressee. Notices will be deemed to be received on delivery or on the fifth (5th) business day after mailing, as the case may be.

12.2 No delay or failure in exercising any right under these Terms, or any partial or single exercise of any right, will constitute a waiver of that right or any other rights under these Terms. No consent to a breach of any express or implied term set out in these Terms constitutes a consent to any subsequent breach.

12.3 If any provision of these Terms is, or becomes, unenforceable, it will be severed from these Terms and the remainder of these Terms will remain in full force and effect.

12.4 These Terms are binding upon and will inure to the benefit of both parties, and their respective successors and assigns. Either party may assign or otherwise transfer its rights under these Terms to a third party ("assignment") on the condition that (a) the third party delivers to the non-assigning party a duly executed document agreeing to be bound by these Terms and (b) the assignment is part of a bona fide internal corporate reorganization or an arm's length commercial transaction. Despite the foregoing, if all or part of the Licensee's business is acquired by a third party (by way of asset or share purchase, merger or amalgamation) or if it becomes an Affiliate of a third party, the scope and effect of these Terms and any Order Agreement(s) will be limited (a) to the business carried on by the Licensee and its Affiliates prior to the acquisition, and (b) to the total number of copies or users of Software actually deployed by Licensee immediately prior to either of the foregoing events.

12.5 This agreement, consisting of the Terms and all Order Agreements referencing the same, and any matters relating to it, will be governed, construed and interpreted in accordance with the laws applicable in the State of Utah, excluding its law relating to conflicts of laws and the United Nations *Convention on Contracts for the International Sale of Goods* (and any legislation implementing such Convention).

12.6 Licensee will ensure that, to the extent permitted hereunder, the Software (and any direct products thereof) is exported or re-exported in compliance with applicable statutes or regulations (including U.S. export laws) relating to the country of destination, or to the users or uses of the Software.

12.7 This agreement, consisting of the Terms and State of Utah Contract MA255, is the entire understanding and agreement between Licensee and Cognos with respect to the Software, and it supersedes all prior negotiations, commitments and understandings, verbal or written, any purchase order issued by Licensee and any terms (in any form or medium) provided with or in the Software. These Terms and the State of Utah Contract MA255 may only be amended or otherwise modified by written agreement signed by the authorized signatories of both parties.

12.8 Cognos has deposited the source codes of the Software in escrow. Licensee shall become a beneficiary under the agreement between Cognos and the escrow agent upon execution of these Terms. Licensee may be required to pay a nominal annual fee to become a beneficiary under the escrow agreement. Licensee shall have the right to receive the source code of the Software licensed hereunder upon Cognos (i) filing a petition for liquidation via bankruptcy or an assignment for the benefit of creditors; (ii) ceasing normal business operations; or (iii) failing to provide support for the Software required under a valid maintenance agreement between Cognos and Licensee for a fifteen day period after receipt of written notice by Cognos from Licensee.

12.9 At such time as these Terms and any Order Agreement become effective, the Licensee authorizes Cognos to use Licensee's name in a press release or similar communication referring to the license of the Software by the Licensee. Any additional information relating to the license of the Software shall be reviewed and approved by Licensee prior to publication.

IN WITNESS WHEREOF, THE AUTHORIZED REPRESENTATIVES OF COGNOS AND LICENSEE HAVE EXECUTED THESE TERMS AS OF THE EFFECTIVE DATE.

COGNOS CORPORATION

By: [Signature]

Name: Kevin P. Shone

Title: Vice President

Finance & Administration

STATE OF UTAH

By: [Signature]

Name: Douglas G. Richins

Title: Director of Purchasing

Cognos Corporation

Bid Contact Tim Deskin
tim.deskin@cognos.com
 Ph 303-229-1937

Address 15 Wayside Road
 Burlington, MA 01803-4609

Bid Notes Included in this response:
 1) RFP Response (138 Page word Doc)
 2) The Last page of the response has 6 sections of embedded attachments including Pricing, Hardware, Support agreements, and add value services
 3) Cognos only took minor exception to the Utah Terms and added an attachment to reflect edits and also attached Cognos Standard Terms and Conditions.

Item #	Line	Item Notes	Unit Price	Qty/Unit	Total Price	Attch.	Docs
JG7023-1-01	n/a	Supplier Product Code: Cognos 8	First Offer -	1 / each		Y	Y
		Cognos took minor exception to the States Terms. Cognos is willing to negotiate agreed to terms and also leverage the 2 existing Contracts on file with the State.					
Vendor Total						\$0.00	

Cognos Corporation

Item: n/a

Attachments

Utah Vendor Response terms Feb07 5.doc

Utah State of attached terms Feb07 4.doc

Cognos Response to State of Utah RFP FINAL.doc



PROPOSAL RESPONSE PREPARED FOR:
STATE OF UTAH



PROJECT TITLE:	ENTERPRISE REPORTING AND BI
RFP NUMBER:	JG7023
COMPANY NAME & ADDRESS:	STATE OF UTAH DIVISION OF PURCHASING 3150 STATE OFFICE BUILDING CAPITOL HILL SALT LAKE CITY, UTAH 84114
VENDOR NAME AND ADDRESS:	COGNOS CORPORATION 15 WAYSIDE ROAD BURLINGTON, MA 01803
VENDOR CONTACT:	NAME: TIM DESKIN TITLE: ACCOUNT MANAGER PHONE: 303-229-1937 EMAIL: TIM.DESKIN@COGNOS.COM

Enterprise Reporting and Business Intelligence Software: Request for Proposal (RFP)

1.0 Introduction

The Department of Technology Services (DTS) was officially formed by Governor Jon M. Huntsman, Jr. and the State Legislature with the passage of H.B.109 in 2005, calling for a major restructuring of the State's Information Technology (IT) services so that areas such as security could be addressed throughout the Executive Branch. Since that time, under the State's Chief Information Officer (CIO), Stephen Fletcher, DTS has embarked on an unprecedented transition to consolidate all IT resources and services for the State of Utah into one department to reduce costs, increase services to taxpayers, and more closely align IT with the business needs of the State of Utah. This RFP is focused on providing enterprise solutions for Business Intelligence (BI) and Enterprise Reporting (ER) software for all of the agencies served by DTS, as well as other interested agencies in all branches of government as a statewide contract.

[Read and understood](#)

1.1 Background

The State has used BI and ER software from a number of different vendors since 1998. These solutions have been sold to specific agencies for specialized BI and ER requirements. Enterprise reporting has typically been supported by separate Web based reporting applications. The intent of this RFP is to identify vendor solutions that meet both BI and ER needs.

[Read and understood](#)

1.2 Purpose

The purpose of this RFP is to establish contracts with one or more vendors for enterprise BI and ER solutions that can be utilized by agencies of State government. It is the intent of this RFP to establish a statewide contract for this software that can be utilized by all branches of government, education, and cities and counties, as needed.

[Read and understood](#)

1.3 Existing Environment

The installed base at the State consists of BI implementations from Cognos and Business Objects. These implementations are hosted by specific agencies and are not available as enterprise resources. The Division of Finance offers all agencies access to Cognos reports for information in the Finance Data Warehouse. Actuate provides an enterprise reporting environment that is hosted by DTS. There are numerous installations of Crystal Reports used in a number of agencies, many of which are imbedded with other commercial software.

Other governmental entities utilize a variety of different approaches for both BI and ER requirements, from additional vendors. Details of installations and existing contracts in various agencies will be provided, if needed, prior to finalizing contracts with vendors.

[Read and understood](#)



2.1 Organization of RFP Responses

2.10 Instructions to Responders

2.11 Responses

Responses to the RFP should be divided into two main sections: Required Business Qualifications, and the Technical Proposal. The Technical Proposal is further divided into Required Technical Capabilities, Desirable Technical Capabilities, and Supporting Materials. Responders are instructed to provide succinct responses that describe the specific terms, performance specifications, etc., that substantiates the responder's claim to meet the requirement. References to supporting materials and Web URLs to online demonstrations to provide further context and illustrations are encouraged.

[Read and understood](#)

2.12 Term of Contract

This contract will be for a term of three years. The State may choose to extend the contract for up to two additional option years, with renewal on a yearly basis. The State will notify the vendor in writing, a minimum of 30 days in advance of the current expiration period, of its intent to extend.

[Read and understood](#)

2.13 Evaluation Criteria

The winning proposal will be evaluated on technical capability, completeness of solution, past performance, and price. All evaluation factors other than cost or price, when combined, are worth 60% of the total score. Cost or price comprises the remaining 40% of the possible score. Vendors are encouraged to provide an executive summary of their responses to sections three through four for ease in evaluating responses.

[Read and understood](#)

2.13.1 Phase One

Proposals will first be checked to make sure that they meet the Required Business Qualifications. Vendors must affirm compliance with all Phase One requirements. Exceptions, if any, should be noted.

[Read and understood](#)

2.13.2 Phase Two

The Technical Proposal will be evaluated separately from the cost proposal. The State will evaluate each technical response item and assign a numerical value that indicates the degree to which the State believes that the response meets or exceeds the requirement.

This numerical value will be multiplied by a predetermined "importance factor" that indicates the relative importance of the particular requirement to the State. The sum of the values derived from this calculation will be used as the total point score to rank the technical proposals. Those technical proposals that receive 70% or greater technical point scores for required and desired functionality will move forward to the cost evaluation phase, subject to the provisions of 2.13. "Completeness of Solution."

The State reserves the right to invite any or all vendors that reach the cost evaluation phase to make a formal presentation to the State regarding their specific proposal, including costs. The State reserves the right to not accept any of the proposals.

[Read and understood](#)

2.13 Completeness of Solution

It is possible that no single vendor will be able to provide a solution that fully addresses all of the required services and capabilities of Section Three through Four of this RFP. Because the various requirements will have different relative importance in the evaluation, the State may choose a solution that does not fully address all of the required services and capabilities, but is still, in the opinion of the State, the best overall solution. In this case, the State may elect to meet these requirements using other resources outside the scope of this procurement. The State may also choose to make multiple awards to satisfy the requirements of this procurement. Required business qualifications, which if not met, will disqualify a proposal from further consideration, are clearly identified in this RFP.

[Read and understood](#)

2.14 Pricing

Pricing information should clearly indicate the costs to provide all of the Required Qualifications from Section Three and costs for capabilities that the vendor is able to provide from Section Four (Required and Desirable Technical Capabilities).

Responders may optionally provide a separate pricing schedule to provide features and services for Desirable Technical Capabilities. Where items are dependent on other optional Desirable Technical Capabilities, these dependencies should be clearly identified.

Pricing should be provided to support guaranteed uptime of 99.5% based on a 24/7/365 schedule. The vendor should specify any hardware, operating practices, or configuration requirement to meet the required service level.

Pricing should be provided in the following format for summary information in the cost section of the response. Additional detailed information on pricing variations based on volumes or options the vendor wishes to offer to the State can also be included in a separate section. Specify consulting and/or training fees and indicate the basis on which such fees are charged (e.g. hourly, per incident, etc.).

Vendors must provide price lists that specify a standard discount off of list for products offered to the State. Prices lists quoted must include: software and licensing, training, installation and/or consulting services, and required maintenance services.

The State desires flexible pricing alternatives for server and license deployment, with consideration for installation in agencies and in State data centers at the discretion of the State. Enterprise License Agreements (ELAs) may be proposed. Respondents should document the licensing and deployment alternatives available as a component of their cost proposal. The details of the licensing model must be explained and well documented.

[SEE PRICING EXCEL SPREADSHEET UNDER ATTACHMENTS SECTION](#)



2.15 State Furnished Equipment

The State will provide the hosting environment for any servers required by the proposed vendor solution. This equipment will be available for the vendor to use in providing the required solution. The State will procure the equipment recommended by the vendor that receives the award. The vendor must specify any equipment necessary to meet the performance and functionality specifications provided herein. The State will procure required equipment under other applicable State contracts.

Successful vendors may be required to run the BI and ER software in parallel with the existing software, in order to demonstrate that the service availability levels and performance levels can be met.

[Read and understood \(See attached Hardware Requirements\)](#)

3.0 Required Business Qualifications

3.1 General Business Requirements

3.1.1 Vendors must indicate their acceptance of the State of Utah Standard Terms and Conditions attached to this RFP as Attachment A. Any exceptions to these terms and conditions must be noted. Significant exceptions may constitute grounds for rejecting vendor proposals.

[Read and understood](#)

3.2 Experience

3.2.1 Vendors must be able to provide reference installations from a minimum of three government customers for Business Intelligence and Reporting implementations. Respondents must have a minimum installed base of 15,000 or more customers using BI and ER products. Any proposals from vendors that cannot meet these specific requirements will not be considered. The vendor should provide specific information describing their reference installations. The State may choose to directly verify the reference installations.

[Cognos has over 26,000 customers worldwide which encompass millions of licenses and users. This mix of customers includes a mix of Private Sector and Government. Below are 3 large Government Customers that fit the criteria for 3.2.1. If further references are needed, Cognos is willing to provide or feel free to visit our website. \[www.cognos.com\]\(http://www.cognos.com\)](#)

LA County

[10 Million Residents](#)

[80,000 Employees](#)

[County Wide Enterprise License of Cognos 8 BI](#)

State of Ohio

[11 Million Residents](#)

[51,000 Employees](#)

[State Wide Enterprise License of Cognos 8 BI \(Non-Perpetual\) See Gartner Study](#)

U.S. Army Reserves

[18,000 Military Officials](#)

[See Press release](#)



<http://www.cognos.com/news/releases/2003/0610.html>

3.3 Financial Stability

3.3.1 The vendor must provide audited financial statements to the State and must meet a minimum Dun and Bradstreet credit rating of 4A2 or better.

Dun and Bradstreet number: 00-843-7345 and the Cognos credit rating is 1R3.

3.4 Availability

3.4.1 The vendor must propose a solution that will deliver availability of 99.5% or greater, including scheduled downtime required for maintenance and upgrades.

The Cognos software will easily maintain 99.5% availability under normal circumstances. Of course, in this scenario the State would be responsible for server maintenance and proper configuration, but when done properly the Cognos software will meet this requirement.

3.5 Obsolescence

3.5.1 The vendor shall set forth a plan by which the solution provided shall not become obsolete. This plan must at least include software support and maintenance for the correction of errors and providing of all releases, versions, changes, modifications, improvements, and updates to the software and supporting systems and its documentation introduced during the life of the contract, including all renewals.

The solution that Cognos is proposing, Cognos 8, will be supported and upgraded for the foreseeable future. Any customer on current support will be eligible for all upgrades, modifications, 24/7 support, etc. as stated in our support agreement attached.

3.6 Support

3.6.1 An annually renewable support plan is required. Vendors must define supported services and response time options available to the State.

Cognos is proposing Standard Support as referenced in the price quote.
See attached Support Agreement

3.7 Installation

3.7.1 If required, the vendor will provide installation and configuration of all software and hardware in order to provide a complete working system to meet the initial performance requirements. These requirements include installation of operating system software, backup and recovery software, utilities, and any other software necessary to make the proposed solution a "turn-key" operation.

Standard Cognos installation services require 3-5 days and are included in the price quote. Cognos is not responsible for Hardware purchase or set-up.



3.7.2 The vendor will provide post installation support and warranty. Describe how this need will be met.

Standard Support offers a range of support services and includes the investment protection value of new releases of Cognos software. Standard Support is a comprehensive package designed to meet the needs of the majority of customers. The major components include major releases and maintenance releases of Cognos software, access to Cognos' award-winning Web Support (<http://support.cognos.com/en/support/>), and telephone support during business hours. Consult the table below for a complete list of Standard Support components.

COMPONENT*	
New Software Releases and Documentation	✓
Maintenance Releases	✓
Patches	✓
Number of Support Contacts	2
Unlimited Case Logging—Access via Web or telephone (for number of contacts designated by plan)	✓
Web Support (http://support.cognos.com/en/support/)	✓
Supportlink™ Magazine (for each designated contact)	✓
Product Enhancement Program	✓
Case Status Tracking via the Web	✓
Extended Coverage	Option
Additional Support Contacts	Option
On-site Support	Option
Global Standard	Option

The following excerpt comes from the *Cognos General Software License, Support and Services Terms*. Please refer to the *Attachments* section below for a complete copy.

6.0 WARRANTY

6.1 Cognos warrants that: (a) it has the right to grant the license to use the Software as set out in these Terms; (b) for a period of thirty (30) days following the initial delivery of the Software, or of any new release of the Software, to Licensee: (i) the Software will perform in conformity with its Related Documentation, and (ii) the media provided by Cognos will be free of defects in workmanship; (c) there are no date issues that will impair the reporting of data or the proper functioning of the Software in accordance with its specifications before, during, or after the year 2000, including February 29, 2000, excluding any impairment caused, present or inherent in the data, database or native file system that the Software accesses (including, but not limited to, dates or date formats that are not century aware); (d) the Software will function in accordance with its Related Documentation in each of the currencies, including the Euro, constituting the European Monetary Union ("EMU"), and enable a user to process its data in accordance with the legal framework implementing the EMU, excluding any malfunction caused, present or inherent in the data, database or native file system that the Software accesses; (e) the Software and the medium on which it was originally provided to Licensee is free from any virus at the time of delivery; and (f) Support and Services will be provided with reasonable skill and care conforming to generally accepted software industry standards.

6.2 THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE.

6.3 If the above warranties are breached, Cognos will, at its option and at no cost to Licensee, (a) provide remedial services necessary to enable the Software, Support or Services to conform to the warranty, or (b) replace any defective Software or media, or (c) refund amounts paid in respect of the defective Software, Support or Services. Cognos' warranty obligations will only extend to material errors that can be demonstrated to exist in an unmodified version of the Software except where the modifications were carried out by Cognos or with its approval. Licensee will notify Cognos promptly in writing of any breach of warranty. Licensee will provide Cognos with a reasonable opportunity to remedy any breach and reasonable assistance in remedying any defects. The remedies set out in this subsection are the Licensee's sole remedies for breach of the above warranties.

6.4 In certain jurisdictions some or all of the provisions in this Section may not be effective or the applicable law may mandate a more extensive warranty in which case the applicable law will prevail over these Terms.



4.0 Required and Desirable Technical Capabilities

4.1 General Requirements

Required Capabilities

Why Cognos?

Already in use at the State: Cognos is currently implemented and being utilized at DOT, Health, Human Services, Finance and an Enterprise Wide License is already in place at the Department of Education. This will allow for minimal implementation and training services as compared to our competitors and also allows Cognos to offer an aggressive price discount as reflected in the pricing section.

Minimal Risk: Cognos is recognized by Analysts, including Gartner, as the Leader in Enterprise Planning and Business Intelligence. Cognos is best of breed! 3rd Party Analyst review: http://www.cognos.com/news/analyst_reviews.html

Experience: Cognos has over 26,000 customers in 135 Countries and is one of the most financially stable and profitable software companies in the world. 80% of the Fortune 500 companies use Cognos. Cognos has over 35,000 State/Local Government agencies worldwide and has a 100% dedicated Sales, Marketing, Services and Support team.

Low TCO: Due to the ONE PRODUCT...ONE PLATFORM approach there are no applets or Multiple Metadata layers for DTS to manage making for a VERY low Total Cost of Ownership. Training and technical support and maintenance is not complicated and results in a faster, easier and successful implementation. Bottom line, the time and cost to manage Cognos 8 vs. any of our competitors is far less.

Scalable: Cognos uses a distributed architecture utilizing the user's browser. This provides exceptional performance and allows scalability to 1000's of users.

Ease of Use: Easy for a business end user and easy for IT to administer. As a standard in the State Cognos will allow for massive knowledge transfer and is ideal for a structure such as a centralized DTS to administer.

One Product & One Platform: The entire Cognos suite of products is fully integrated on one Framework Manager/One Metadata Layer presented over the web in a Zero Footprint.

Curam Partnership: Cognos has partnered with Curam Software (eREP) and is now the standard Reporting/Bi tool for Curam customers. Cognos is developing standard reports for the Curam solution. The email below is from the President of Curam:

As per your request, this email is to confirm that Curam Software has formally entered into a strategic Partnership Agreement with Cognos Corporation. What this means to the State of Utah, and to all other Curam customers (and prospective customers), is that our respective companies intend to standardize the integration between our respective product suites to provide an unparalleled level of data management and reporting to our joint clients. It is our intent that Cognos will be recognized as the de facto Reporting and Business Intelligence solution for Curam.



As you may know, Curam is working with Cognos as we speak to create standard Metadata that would provide simplified report development and standard reports. Our goal is to make this available in the first quarter of 2007.

On a final note, I would add that the support and partnership that Cognos has demonstrated as we have progressed our relationship has been exemplary. I would be happy to act as a reference for Cognos to anyone in the State of Utah – please feel free to pass my contact info to any of their executives as required.

Very best regards,

Ernie Connon
President
Curam Software Inc.
Office: (703) 738 9802
Mobile: (571) 331 2857

The information in this email is confidential and may be legally privileged. It is intended solely for the addressee. Access to this email by anyone else is unauthorized. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you are not the intended addressee please contact the sender and dispose of this e-mail. Thank you.

SCT Banner Partnership: Cognos has recently entered into a formal partnership with SCT Banner. The Banner System is the prime Application used by all State Colleges. The following is a formal announcement released by both parties:

30-January-2007

Dear State of Utah Higher Ed Customers,

SunGard Higher Education and Cognos Corporation have entered into a new strategic partnership to provide a superior and more complete business intelligence solution to existing SunGard Higher Education customers and other colleges and universities that need Information Access and Performance Management solutions.

SunGard Higher Education's Operational Data Store (ODS) and Enterprise Data Warehouse (EDW) solutions will use Cognos Business Intelligence as the primary mechanism for accessing, managing, and analyzing key performance data for higher education institutions. These solutions help turn data collected in administrative systems into applied knowledge enabling better decision-making.

To deliver a new level of value to colleges and universities, the two companies will expand the Cognos/SunGard Higher Education product offerings and align product development strategies. This relationship demonstrates both organizations' commitment to helping institutions gain maximum return on investment from their SunGard Higher Education solution by leveraging Performance Management best practices.

Under the terms of the agreement, Cognos is the preferred BI vendor for SunGard Higher Education customers and SunGard Higher Education is Cognos' preferred channel for delivering BI solutions to SunGard Higher Education customers. Additionally, Cognos is now a select member of the SunGard Higher Education Collaborative, a formal network of companies with extensive domain expertise that complement SunGard Higher Education's software and services to deliver reliable solutions for higher education.



If you have any questions, please contact me at 303-229-1937 or tim.deskin@cognos.com

Thank you,

Tim Deskin
Cognos Corporation



Aggressive Pricing: Cognos has extended an extremely aggressive pricing scenario that will allow the State of Utah to purchase a server based or Enterprise license to cover virtually every Department in the State. Many BI Vendors prefer to offer a “CPU Based” pricing model and shy away from a true Enterprise Site License in an effort to return in the future and up-sell additional CPU’s. Cognos is offering both options and willing to work with the State to find the best fit.

Budgeting and Planning Included: Cognos has been short listed through the GOPB RFI that was released over the summer. The proposal includes all software required for the State to roll out Cognos Planning and Budgeting. If selected, Cognos would allow the State to run Business Intelligence/reporting as well as Enterprise Planning and Budgeting on one Platform across the entire State. This will allow for true Government Performance Management for the State of Utah!

RFP Requirements: In summary, there are NO requirements in this RFP that Cognos can not meet or exceed. This includes all Required, Technical and Desirable requirements in this RFP.

Summary: The State of Utah has many projects currently in progress such as the eREP roll out and the Governor’s Score Card initiative. As noted on the price sheet, Cognos has partnered with pm2 (see attached Bio) and offering an on-site, free, education seminar on Scorecarding/Dashboarding with a world renowned Scorecarding expert, Brett Knowles. <http://www.pm2.ca/>

Cognos has a strong desire to win this RFP award and become the exclusive Reporting/BI partner moving forward and adding the State of Utah to the long list of Cognos References.

4.1.01. API—Platform and Language Support: The solution must provide a published and fully documented API for custom development. This API must be available on the platforms identified in this general requirements section. Examples of how the API works with security roles and LDAP are desirable. This API must support industry standard protocols, languages, and standards, such as: C, Java, JavaScript, XML, WSDL, SOAP, etc.
Cognos offers the richest API in the industry. Any web-based application can interact with Cognos at the SOAP API level, depending on the functionality needed. The API supports many industry standard protocols, languages, and standards, including:



- § C
- § Java
- § JavaScript
- § XML
- § WSDL
- § SOAP

The Cognos open architecture provides a platform-independent automation interface for working with Cognos services and components. These Cognos services and components issue calls and return replies in standard formats, including HTTP and SOAP via HTTP.

Virtually everything you can do with the product natively, you can also achieve programmatically using the Cognos open architecture:

- § Let other applications or Web portals interact directly with Cognos information content
- § Make your reports available in a web portal
- § Create reports
- § Administer, schedule, and deploy reports and other objects
- § Administer Cognos groups and roles, and ReportNet access permissions
- § Authenticate users
- § Extract a series of user actions from the log action file for auditing
- § Modify a report
- § Modify the appearance of Cognos
- § Run, view, and edit reports through a hyperlink in an HTML page
- § Administer and implement security
- § Set up an unattended installation
- § Set up an unattended configuration
- § Retrieve the query items
- § Grant capabilities
- § Manipulate objects in the content store
- § Create custom report function libraries for report authors
- § Create your own custom messages and user interface strings, see the Cognos Localization Development Kit Installation and User Guide

The API is based on SOAP 1.1, and therefore may be accessed by a Java Toolkit, a COM Toolkit, or the .NET Framework. Cognos 8 ships with Java libraries and other sample code encapsulating the framework.

Cognos 8 has a single WSDL file, which defines all programmatic interaction. For the simple example of running a report, your SOAP request would include:

- § The name of the report
- § The path to the report
- § The requested action: run the report or retrieve a pre-run report
- § The relevant authentication credentials
- § The format you desire



Cognos integrates seamlessly with external authentication and authorization packages. Cognos supports LDAP, NTLM, SAP Security, Active Directory, and several others natively. Support for others can be customized with our Security SDK. When using an external source of users, groups and roles, Cognos obviously requires the creation and management of users and roles to occur in the external system. However, customers may create Cognos-specific groups and roles that exist only in the Cognos context.

Single-sign on is also supported. Every request for content from Cognos 8 must contain a valid Passport, identifying that request as coming from a user who has been authenticated against a valid Cognos namespace (LDAP, AD, etc.) That passport is typically stored in a browser cookie, or passed to Cognos as part of a SOAP API request. If Cognos does not receive a valid passport, its default behavior will prompt the user for an ID and password.

Single Signon is accomplished by leveraging this process to ensure that Cognos gets what it needs to trust the identity of the user:

- § For some security architectures (NTLM security, Active Directory, Netegrity SiteMinder) this happens with only minimal configuration changes, through Integrated Windows security.

For other architectures, Cognos provides a set of dedicated security API's with which you can customize the authentication conversation between Cognos and any other authentication source, thereby enabling single-sign-on.

4.1.02. Browser Independence: The solution must provide all browser based functionality via open standard browser capabilities. All mandatory browser based functionality must be supported using current supported versions of Microsoft Internet Explorer and Mozilla Firefox. Netscape and other browser support is highly desirable.

The client browser machine can be of any configuration because the Cognos Solution is a Zero footprint solution. This means that no software resides on the user's desktop and no software is downloaded to their desktop to view a report, the only requirement is a browser. Typical browsers are Internet Explorer or Netscape Navigator. Below is a partial list of supported browsers:

- § Internet Explorer 6
- § Netscape 7.2
- § Netscape 7.1
- § Firefox 1.5 Linux/UNIX
- § Firefox 1.0.4+

Additionally please see:

<http://support.cognos.com/en/support/products/environments.html>

4.1.03. Centralized Metadata: The solution must allow a system developer to make changes to a reporting application in one centralized location in a manner such that the solution will propagate those changes to all dependent components. Typically this is accomplished via the use of a centralized metadata repository hosted on a database server. Changes that should be propagated automatically include, but are not limited to: updates to available data elements, filters, calculated/derived measures,



and prompts; updates to user authentication and authorization rules; updates to business names for data elements; and, updates to report layout information/templates.

The Cognos solution provides functionality to define global settings and common variables. These parameters can be defined so that all reports use the same definition for such settings or calculations as; accounting date, current period, margin, etc. These global settings can be defined in a common metadata repository so they are easily managed and maintained. When a definition changes, it only needs to be changed in the metadata repository and all reports will inherit those changes.

Uniquely, Cognos shares metadata across all interfaces. Most of our competitors offer disparate products for Ad-Hoc, Managed Reporting, Dashboarding, Business Event Management and Wizard-driven reporting. As such, they require distinct metadata for each context, or in the very best case, a master metadata that must be propagated to each context's kernel and query engine. Cognos 8, conversely, offers one metadata Framework, which may be used in any context.

4.1.04. Centralized Metadata Driven Approach: The solution must maintain a centralized metadata repository. The metadata repository should maintain information about available data sources and elements, formulas and filters for derived attributes, report templates, user authentication and authorization rules, and job execution schedules. The metadata should be utilized by the products in a manner that allows system developers and administrators to make changes in one centralized location. These changes should be automatically propagated for use by all users.

Cognos metadata is very powerful. First, it is a collection of XML that can be created with simple drag and drop capability to one or many data sources. Administrators can also import metadata from many third party tools including Informatica and ERWin. Cognos metadata can also join multiple, heterogeneous data sources in a single layer. You can set governing features in the metadata such as row, level and cell level security and specify query limit size. You can also use the metadata to scan connected reports and queries to conduct impact analysis and prevent reports from re-work. Cognos metadata can be used by multiple developers in a CSV or Visual Source Safe environment. Administrators can import/export this metadata from test to production easily with an intuitive web-based wizard.

Likewise, all of the meta-components listed above such as execution schedules, filters and formulae, are centralized and stored on the web with the same shared architectural considerations.

4.1.05. Common Metadata: The solution must utilize a common logical metadata model that is leveraged by all vendor products. If products utilize separate physical implementations, they must integrate in a manner that does not require duplication of development work. For example, if an ETL product is used to identify database table structures and relationships, a developer of reporting applications should be able to leverage the models previously developed in the ETL tool.

To foster ease of use with respect to database communication, Cognos has a metadata layer, used across all interfaces, including ETL, OLAP, Ad-Hoc Query, Managed Reporting and Professional reporting. You can develop your joins and business definitions once, and deploy them across the entire breadth of the Cognos BI Suite.



Moreover, one metadata repository, called a Model, can incorporate multiple Data Sources, and that single model may be deployed, in whole or in defined subsets, to many classes of users simultaneously, without having to maintain multiple copies or multiple sets of metadata.

Metadata incorporates many functions, including:

- § Defining a semantic layer surrounding your database structures, so that your users see “Course Description”, versus “CRSE_DESC_CURR”.
- § Defining default data formats, so your users see “1 Jan 2001”, instead of “2001001”.
- § Defining joins between data, so your users can see departments alongside enrollments without knowing that “DEPT.DEPT_CODE = ENRL.DEPT_CODE”.
- § Providing an abstraction layer upon which reports may be created. Because of this abstraction layer, a change to a database table or column or stored procedure requires only a single change to the metadata, versus revisiting every impacted report.
- § Internationalizing your database, so users who run a report see only data in their native language.
- § Securing your data so that users can be shielded from sensitive information like Salary and SSN.
- § Filtering your data so that users in the Philosophy department see only Philosophy department data.
- § Defining aggregation rules, so users see Average GPA, versus a meaningless sum of a student’s grade points.

Cognos metadata is stored as a set of XML files on the file system. As such, you are free to use the Cognos Framework Manager utility to modify the metadata, or make direct changes to the XML definitions themselves using XSLT or other text editing capabilities. This metadata is then published to the web for use by all user types.

4.1.06. Consistent Application of Security Rules: The solution must enforce user and role security rules regardless of the interface that is used. This includes dashboards, production reports, ad-hoc reports, maps, and any other interface. The solution must enforce authentication and authorization rules at all times and prevent bypassing of security via direct link/URL calls.

The Cognos 8 Access Manager console may be used to configure users, groups, roles, database sign-ons, user information, single signon, etc.:

In many customer installations, users are added through the security architecture that is in place. It is important to note that Cognos’ security architecture does not require replication of any users, groups or roles already in existence at the State of Utah. Rather than requiring a copy of that information to secure the Cognos application, Cognos’ security architecture will leverage those constructs as they are and where they reside, in order to minimize administrative costs and maximize existing infrastructure.

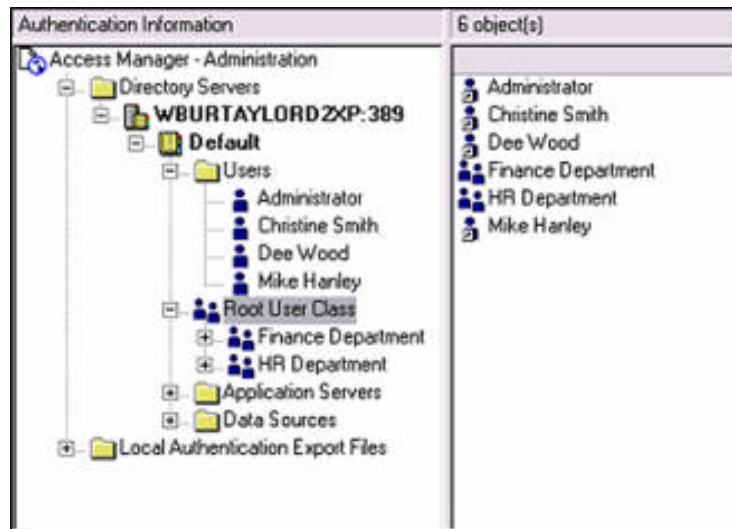
Once users and groups are authenticated into Cognos, administrators must grant access to reports, cubes, metrics, etc. to the user community. In addition, administrators may wish to encrypt data using 40-bit or 168-bit encryption algorithms. The administration tool is available in the Cognos Connection portal purely on the Web.

Every request for content from Cognos 8 must contain a valid Passport, identifying that request as coming from a user who has been authenticated against a valid Cognos namespace (LDAP, AD, etc.) That passport is typically stored in a browser cookie, or passed to Cognos as part of a SOAP API



request. If Cognos does not receive a valid passport, its default behavior will prompt the user for an ID and password.

The proposed Cognos solution supports a layered security mechanism. Security includes defining user roles, assigning users to different user roles/groups, and defining access at various levels. In addition to granting access to selected reports based on user classes, Cognos can secure on a specific data mart (subject area), database table, database table row, or table column. Also controlled by the layered security mechanism are user read/write privileges, functionality privileges and layout. Authorized system administrators manage user group administration and security control.



4.1.07. Data Sources: The solution must provide the ability to retrieve data from the following data sources: IBM Informix, IBM DB2, Microsoft SQL Server, Oracle, Sybase, text files (character delimited and fixed length fields), XML files, Microsoft Excel files, and any ODBC or JDBC accessible data sources. ADABAS will also be used as a data source and retrieval of this data is highly desirable using direct or intermediate methods. The solution must provide the ability to retrieve data from both relational and OLAP data servers.

First, Cognos can query virtually any data source, from mainframe data, relational data via native drivers of ODBC, even modern source such as LDAP, XML, JDBC and Web Services. Cognos allows you to join these data source without having to extract, transform and load the data into a single database. User use a simple drag and drop tool to create queries either from a report design standpoint, or a query stand point. With Cognos you can design the report visually with drag and drop techniques or first design the query, then arrange the queries into the format of choice such as graphs, lists, cross tabs, etc.

The following list is what Cognos officially supports; many other tool sets including additional ETL tools, data sources via third party drivers, portal technology and development environments have successful implementations with Cognos:

Database Support for Reporting

DB2 UDB 8.1 FixPak 6b via DB2 Connect 8.1 Runtime Client



DB2 UDB 8.2 FixPak 5 via DB2 Connect 8.2 Runtime Client
DB2 UDB 9.1 via DB2 Connect 8.2 Runtime Client
DB2/400 V5R2 via DB2 Connect 8.1 Runtime Client
DB2/400 V5R3 via DB2 Connect 8.1 Runtime Client
DB2/400 V5R4 via DB2 Connect 8.2 Runtime Client
DB2/390 Version 7.1 via DB2 Connect 8.1
DB2/390 Version 7.2 via DB2 Connect 8.1
DB2 Universal Database for z/OS Version 8.1 via DB2 Connect 8.1 APAR AQ90141 must be applied
Informix IDS 10 via 2.9 Informix Connect
Informix IDS 9.4 via 2.81 Informix Connect
Informix IDS 9.3 via 2.81 Informix Connect
Informix Dynamic Server 7.31 via 2.81 Informix Connect
Informix XPS 8.5 via Informix Connect 2.81
Informix XPS 8.4 via Informix-Connect 2.81
MSSQL Server 2000 SP4 via OLE-DB
MSSQL Server 2005 via native client
MSSQL Server 7.0 via OLE-DB
Oracle 9.2.0.1 via Oracle 9i client (Oracle 9i Release 2)
Oracle 10G Release 1 via Oracle 10.1.x client
Oracle 10G Release 2 via Oracle 10G client
Sybase Adaptive Server Enterprise 12.5.x via CT-Lib
Sybase Adaptive Server Enterprise 12.5.3 via CT-Lib
Sybase Adaptive Server Enterprise 15 via CT-Lib

ODBC Support for Windows

DB2/400 V5R2 via iSeries Access for Windows V5R2 (formerly Client Access Family Express V5R2)
DB2/400 V5R3 via iSeries Access for Windows V5R3 (formerly Client Access Family Express V5R3)
DB2/400 V5R4 via iSeries Access for Windows V5R4 (formerly Client Access Family Express V5R4)
Sybase IQ 12.6
Sybase IQ 12.5.3
Sybase IQ 12.5
MS Access 2000 via ODBC 4.0
MS Access 7.0
MSSQL Server 2005



MSSQL Server 2000 SP4
MSSQL Server 7.0
ODBC from UNIX and Windows
Microsoft SQL Server 2005 via DataDirect Version 5.1
Microsoft SQL Server 2000 via DataDirect Version 5.1
Informix Redbrick Decision Server 6.2
Informix Redbrick Decision Server 6.3
Teradata V2R5 via 3.04 ODBC drivers (TTU 8.0)
Teradata V2R5.1 via 3.05 ODBC drivers (TTU 8.1)
Teradata V2R6 via 3.05 ODBC drivers (TTU 8.1)
Teradata V2R6.1 via ODBC 3.05 (TTU 8.1)
OLAP Support
Essbase OLAP 6.5
Essbase OLAP 7.1
MSSQL Server Analysis Services 2000
MSSQL Server Analysis Services 2005
DB2 OLAP Server 8.1 FP1+
DB2 OLAP Server 8.2
PowerCubes Transformer 7.3
PowerCubes Transformer 7.4
Cognos Finance 7.3 SP3
Cognos 8 Planning - Contributor 8.1 (Requires Contributor Data Server)
Cognos 8 Planning - Contributor 8.1 (Requires Contributor Data Server)
SAP BW 3.0B SP31 **
SAP BW 3.1 SP25 **
SAP BW 3.5 SP17 **
Data Source
IBM DB2 v7
IBM DB2 v8
Informix v9
MS SQL Server 2000
MS SQL Server 2005
Oracle 8i
Oracle 9i



Oracle 10g
MySQL 3.x
MySQL 4.0
MySQL 4.1
MySQL 5.x
Sybase Adaptive Server Enterprise v12.5
Netezza NPS 2.5
MS Access
MS Excel
LDAP
SOAP 1.1
mySAP (R/3) 4.6
mySAP (R/3) 4.7
mySAP (R/3) 5.0
Siebel 7.5
Siebel 7.7
Siebel 7.8

4.1.08. Functional Independence by Server: The solution must allow the installation of functional components on different servers in a way that supports scalability and geographic distribution of the application.

Cognos is built upon a multi-tiered, Web Services based architecture. The first tier, the gateway, accepts and process requests from web browsers. The second tier, the dispatcher intelligently routes requests to the third tier, the application server. Protocols used in the transactions are XML over SOAP/HTTP(s) in a Web Services container. This architecture offers a highly scalable open architecture based on a fully published WSDL or Web Services Definition Language. Because no operating system specific information is sent during transactions Cognos may be installed across multiple servers and operating systems and issue requests back and forth to any supported browser. You can add more tiers to increase scalability, and provide load balancing and failover.

Scalability is the ability of a system to adapt to increased processing demands in a predictable way, without becoming too complex, expensive, or unmanageable. As you deploy a system to larger numbers of users, often in different locations and time zones and with different language requirements, scalability becomes increasingly important.

Cognos 8 was designed for scalability. It scales vertically using more powerful computers, and horizontally using a greater number of computers. How you install and configure Cognos 8 components can enhance its scalability.

All Web communication in Cognos 8 is through a Cognos 8 gateway installed on a Web server. To increase the scalability of your Cognos 8 system, you can run your Web server on a larger computer.



You can also install the Cognos 8 gateway on more than one Web server and configure your servers to leverage load balancing features.

Load balancing spreads tasks among all available processors. It is important in any system, and is a key to processing capacity and scalability. In Cognos 8, load balancing means ensuring that processing requests are distributed appropriately among all the available Cognos 8 servers. Cognos 8 does this automatically, but you can configure load balancing as well.

Automatic Load Balancing

In a distributed environment, Cognos 8 balances request load automatically. By default, as servers are added to the system, each server dispatcher processes the same number of requests. If there is more than one instance of a given service, the dispatcher distributes requests to all the enabled instances of the service that are registered in Content Manager.

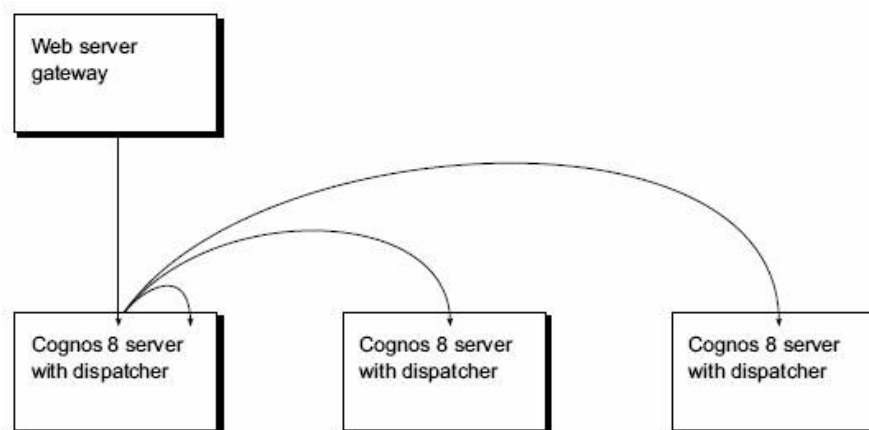
Configuring Load Balancing

While automatic load balancing may be appropriate when hardware resources are identical throughout a server topology, it may not be ideal in environments containing a mix of hardware resources with different capacity characteristics. In a hardware environment that contains servers with varying degrees of processing capacity, it is desirable to balance the processing load according to each server's capacity.

In Cognos 8, you can set process capacity settings using the server administration tool in the Cognos Connection portal. For example, if you have two servers, one of which has twice the capacity of the other, you might assign the more powerful server a weight of two and the less powerful server a weight of one. Cognos 8 then submits twice as many requests to the more powerful server.

Load Balancing Dispatchers

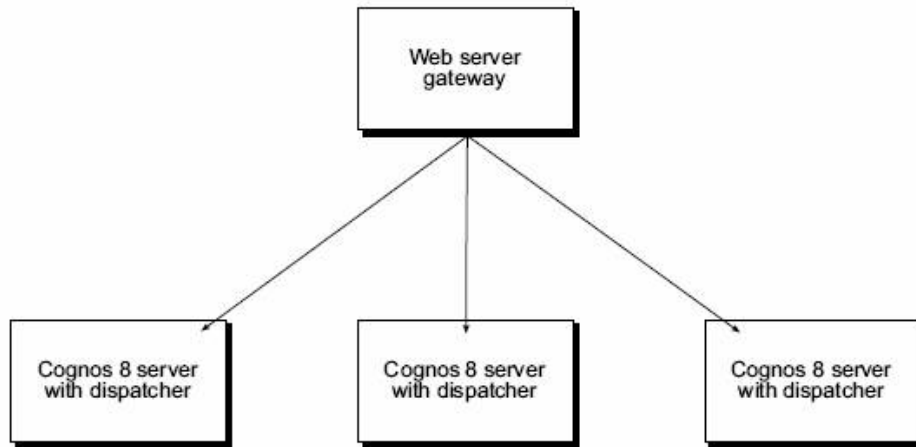
Without a software or hardware load balancing mechanism, each Cognos 8 gateway is aware of only one dispatcher, and distributes all requests to that dispatcher. The dispatcher then distributes the requests among Cognos 8 servers. Because every request initially goes through the same dispatcher on one server, the load on that server is increased. An extra step is needed to automatically balance the load, as shown in the following diagram.



This extra step can be avoided by either implementing load balancing without an external load balancing mechanism, or by using a router or other load balancing mechanism.

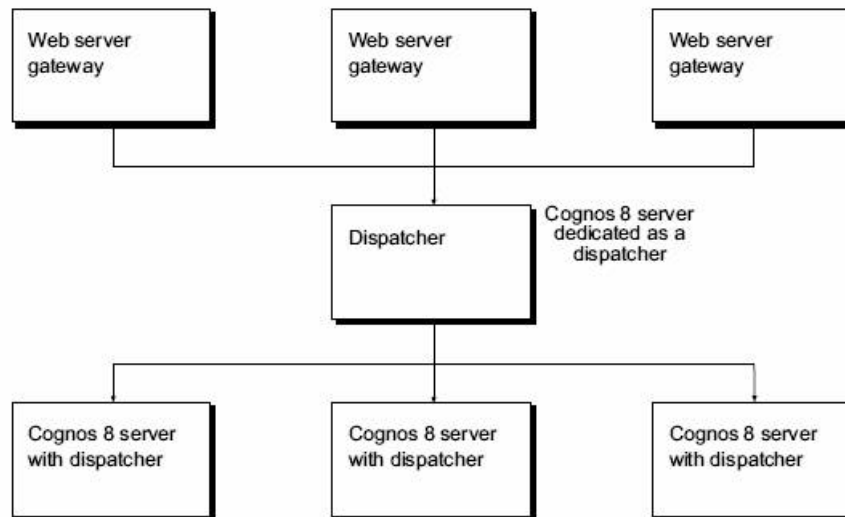
Load Balancing Without an External Mechanism

Since gateway servers often have less load than Cognos 8 servers, you may achieve better performance by configuring dispatchers together with the gateways, as shown in the following diagram.



This ensures that the processing capacity of the Cognos 8 servers is directed toward serving report requests rather than load balancing requests.

You can also achieve load balancing by having gateways direct all traffic to a Cognos 8 server computer that is dedicated to dispatching, as shown in the following diagram.



This configuration also removes dispatching load from the Cognos 8 servers. However, it does require separate dispatching computers.

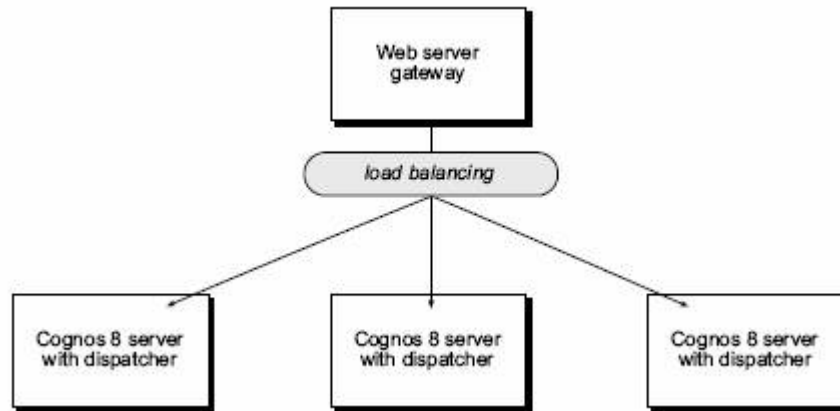
Using External Load-Balancing Mechanisms

You can use external load-balancing mechanisms, such as routers, to further distribute tasks in Cognos 8. Load-balancing routers can be used in either or both of these locations:

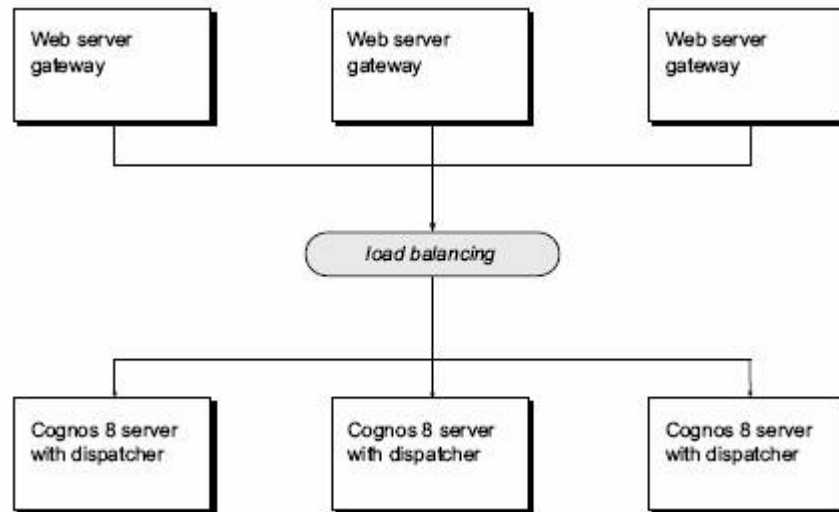
§ between the browser and Tier 1: Web Server

§ between Tier 1: Web Server and Tier 2: Cognos 8 Server

You can use an external load-balancing mechanism to distribute requests to dispatchers across all available servers, as shown in the following diagram.



You can also use routers with multiple gateways, as shown in the following diagram.

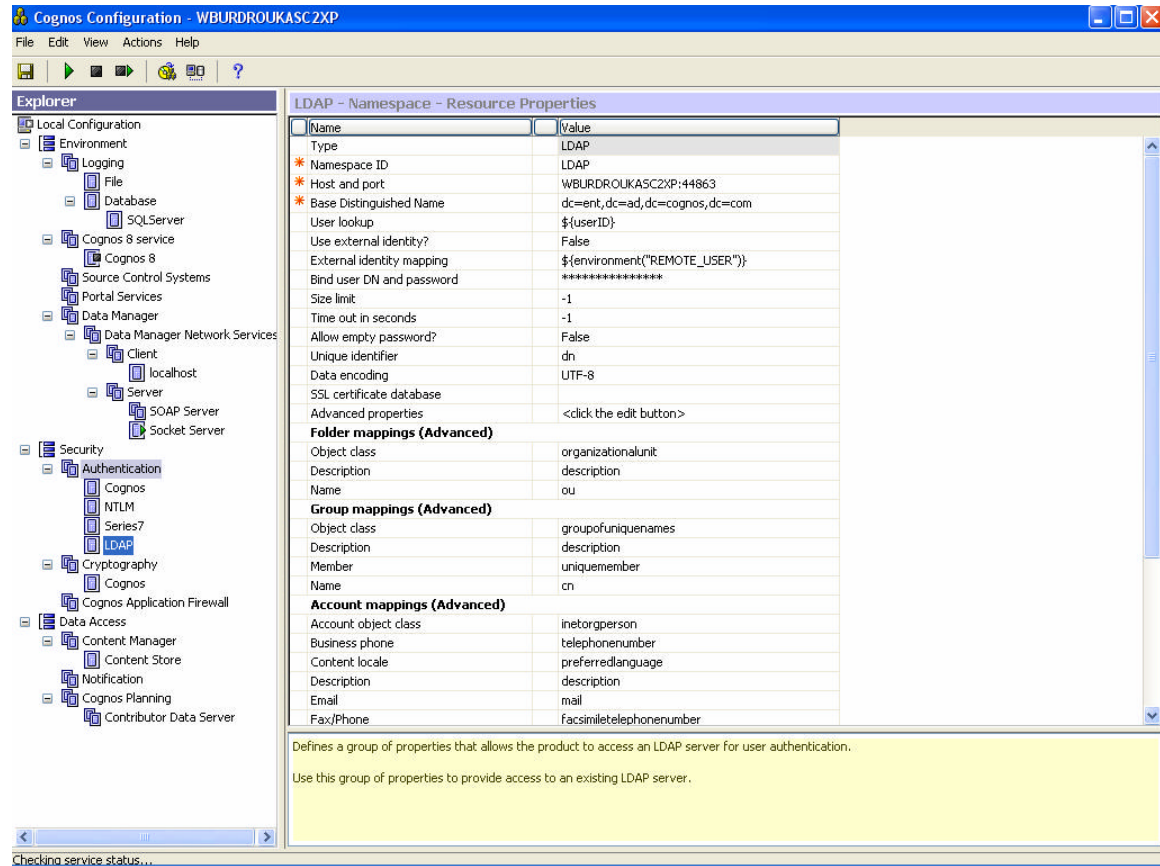


An ideal load-balancing mechanism provides the same capacity awareness as a Cognos 8 dispatcher.

To ensure that requests are not distributed by both an external load-balancing mechanism and the dispatcher, you must configure the dispatchers to not use their built-in load balancing for low affinity requests. This ensures that requests remain at the server where the hardware load balancer directed them.

4.1.09. LDAP Support: The solution must support integration with LDAP v3 directories to support user authentication, and in the case of the State of Utah, must provide an API for the Utah Master Directory (UMD).

By default, Cognos uses LDAP to manage user access, user groups and user roles. Active Directory Services (ADS), Database security, Operating System (OS) security can also be used for user authentication as well. In fact, any combination of ADS, LDAP, OS, or database/RDBMS security can be used for authentication to support a single sign-on architecture. Furthermore, our Security SDK can allow you to leverage any other security platform already in house, as appropriate.



4.1.10. Minimal Coding: The solution must utilize a GUI to complete developer, administrator, and end user tasks. The solution should not require the use of custom coding to implement product functionality. System development activities should involve GUI based configuration of data sources, business names, report layouts, user access, security rules, and all other product functionality. The GUI should populate the centralized metadata repository with the results of the system development process.

It is the first completely Web-based enterprise reporting solution to address all of your organization's reporting requirements. It supports reporting convergence in three areas that are key to lowering total cost of ownership, increasing employee self-sufficiency, and reducing the burden on IT.

Cognos 8 elevates Cognos' Enterprise Business Intelligence solution to the next level with breakthrough query and reporting. It is fully integrated with Cognos' Scorecarding, Dashboarding, Analysis, Event management, and ETL capabilities. The result is the broadest and deepest BI solution from a single vendor.

Cognos 8 can develop any and all types of reports—from simple inventory lists to high-volume billings and more. It meets the needs of every kind of user—from simple report consumers to professional authors and developers. And it smoothly integrates into your existing IT infrastructure to leverage its value, without creating the need for additional security, data storage, or redundant environments.

4.1.11. Output Formats: The solution must allow output (reports, charts, graphs, and maps) to be produced in any of the following formats: PDF, Microsoft Excel, CSV, XML, HTML, Flat Text Files (.txt), and the solution's native output format.

You can specify which formats are available for users to view their reports. For example, you may want to prevent users from exporting reports in Excel. The report formats are controlled by the format element of the reportFormats parameter in the system.xml file located in the c8_location/templates/ps directory.

By utilizing the Cognos SDK to customize report formats, data can be rendered in any of the following formats:

- § CSV
- § HTML
- § HTMLFragment
- § MHT
- § PDF
- § singleXLS
- § XHTML
- § XLS
- § XLWA
- § XML

Any of these report formats could be transformed into any style of report output through programmatic output formatting and/or integration of a variety of third party document converters.

4.1.12. PDF Format Documentation with Rights to Reproduce: The solution must provide documentation in softcopy PDF format. The documentation needs to be available for all products and system implementation activities, including, but not limited to, installation, administration, system development, end user reporting, and troubleshooting. The State of Utah must be granted the right to produce unlimited copies of electronic or printed copies for internal use.

System and user documentation are delivered with the software in both PDF and HTML format. A “Discovering” course is delivered with each Cognos product that walks users through the essential navigation requirements of the tool.

Other documentation includes user guides, tutorial guides, reference books, and other pieces of reference to meet the needs of a varied audience. All information is available in online help. Online help is available from the Help menu and Help button in Windows products. Additionally, all online books are available on the Cognos documentation CD. Users can also read the product readme files and the installation guides directly from the Cognos product CDs, or from support.cognos.com



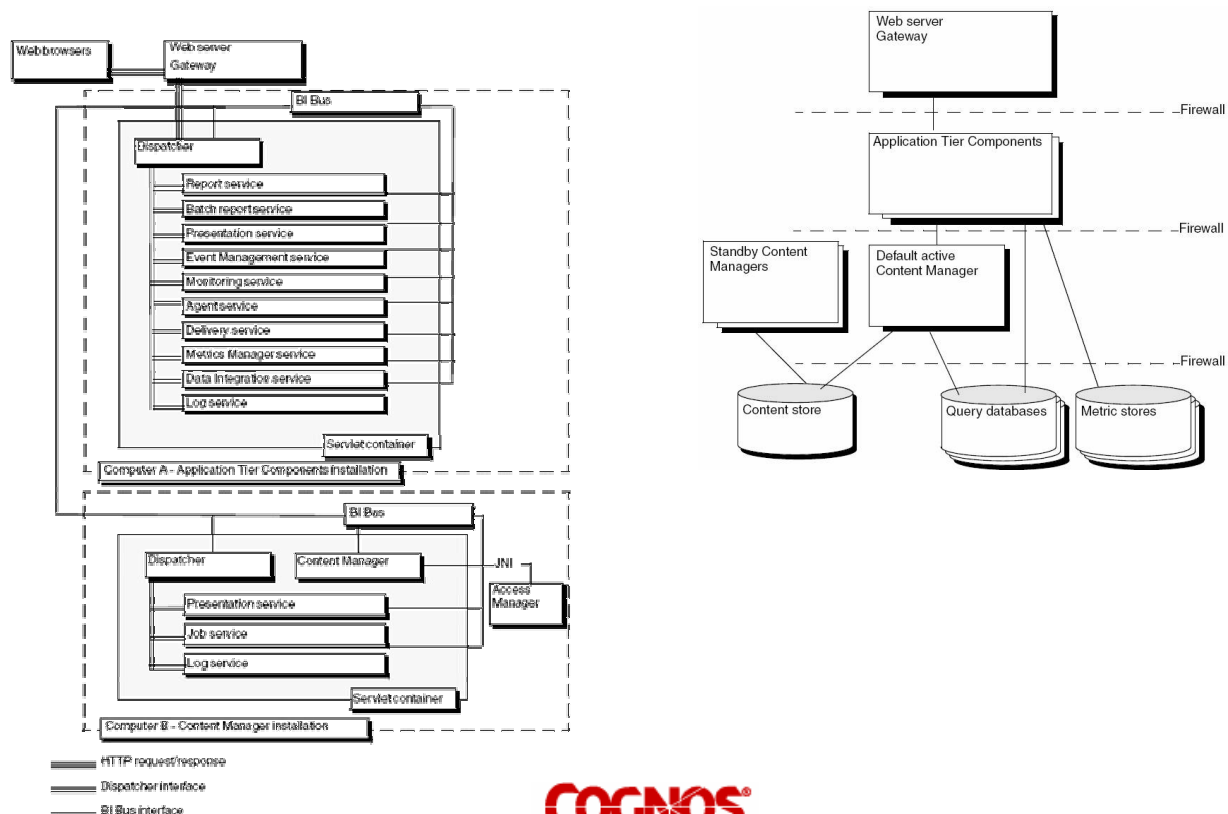
The information in each online help system is available in online book format (PDF). Users can print selected pages, a section, or the whole book. Cognos grants our customers a non-exclusive, non-transferable license to use, copy, and reproduce the copyright materials, in printed or electronic format, solely for the purpose of providing internal training on, operating, and maintaining the Cognos software. All system and user documentation is available as on-line context sensitive help.

4.1.13. Scalability: The solution must support implementations of various sizes. For smaller projects, the solution must allow multiple products to be hosted on a single machine. For larger projects, the solution must allow expansion of processing capacity through deployment of additional servers to the system infrastructure in a manner that maintains a unified logical implementation. The solution must accomplish this without requiring changes to any developed components—scripts, reports, etc.

To ensure scalability and performance we propose a three tier architecture for the BI solution. Tier 1, the presentation layer, users servers that provide web services. In combination with the user local web browser, this layer provides Cognos application result with the least amount of resources without sacrificing state-of-the-art presentation.

The Application, Tier 2, is where Cognos 8 processes your requests building the queries and developing the reports for presentation by the web server. Our solution supports multiple computers working in a cluster configuration to provide faster response. A Content Manager is providing separate from the application servers to further improve performance, availability, and capacity.

In the following diagram, incoming requests are routed to a gateway. The gateway forwards the request to one of the Application Tier Components computers. The Application Tier Components computer that receives the request forwards it to the active Content Manager, which queries the content store and sends the results back to the Application Tier Components computer for rendering. The diagram to the right shows the path a request takes through the application tier. The Diagram below is a more detailed flow through the component of Cognos 8

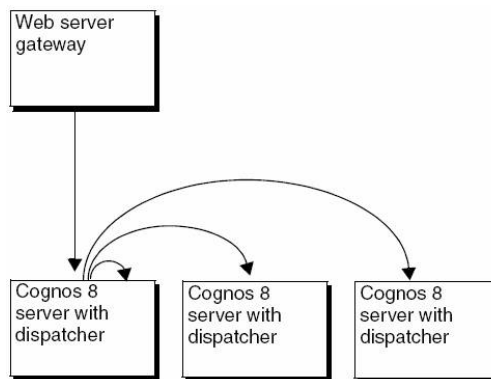


Our solution includes more than one Content Manager, each on a different computer. using server clustering both Content Manager computers accepts request based on how busy they are. In the event of hardware or software failure the cluster manager directs all requests to the remaining servers and notifies support engineers of a problem. The system detects when the service is restored and begins to redistributes the workload. A complete set of manual tools will also be installed.

In a distributed environment, Cognos 8 balances request load automatically. By default, as servers are added to the system, each server dispatcher processes the same number of requests. If there is more than one instance of a given service, the dispatcher distributes requests to all the enabled instances of the service that are registered in Content Manager.

Load Balancing Dispatchers

We are recommending an external load-balancing mechanism, to distribute tasks in Cognos 8. The dispatcher's job is to distribute the requests among Cognos 8 servers. Because every request initially goes through the same dispatcher on one server, the load on that server is increased. An extra step is needed to automatically balance the load, as shown in this diagram.



4.1.14. Usage Reporting: The solution must support the generation of reports of system usage. Usage reporting must include the following information:

- Users currently logged into the system.
- Reports/queries run in interactive/live mode (report name, SQL being executed, execution status, when started, when ended, total duration).
- Reports/queries run in the background/scheduled mode (report name, SQL being executed, execution status, when started, when ended, total duration).
- Last execution for each production/shared report (report name, execution status, when started, when ended, total processing duration).
- Last accessed date/time for each production/shared report, and who is running reports for HIPAA and other privacy/security requirements.

Cognos provides extensive performance monitoring and tuning capabilities. Cognos captures the following Metrics on all Reporting activity:

- § Reports Viewed
- § Reports Run
- § Jobs (scheduled Reports) Run

- § Login Activity
- § Denied Login Activity
- § Actions by Object
- § Queries executed

These metrics are captured in a relational database. The level of detail recorded is configurable. Pre-built reports are delivered and documented. Pre-built reports include:

Execute reports by package and report - Lists the reports that were run, by area. It also includes the user, timestamp, and execution time in milliseconds for each report. You can select a date and time range, one or more users, one or more areas, and one or more reports.

Execute reports by user - Lists the reports that were run, by user and by functional area. It also includes the timestamp and execution time (in milliseconds) for each report. Users can select a date and time range, one or more users, one or more packages, and one or more reports.

Execution history by user - Lists the reports that were run alphabetically, along with the functional area and timestamp, by user. It includes the total number of times each user ran each report and the total number of reports each user ran altogether. It also includes the total number of reports run by all users. You can select one or more users for the report. After you run the audit report, you can choose to view the statistics for a particular report or for all reports.

Logon operations by time stamp - Shows logon and logoff timestamps and operations, by user. It also includes the total number of logons for each user and the total number of logons altogether. You can select the time period and one or more users for the report.

Logon operations by user name - Shows logon and logoff timestamp by user, along with the type of logoff operation that occurred. It also includes the total number of logons for each user and the total number of logons altogether. You can select one or more users for the report.

Operations by selected object and users - Shows the operations that are performed on target objects, by user. It includes the target object path, timestamp, and the status of the operation. You can select one or more objects, operations, or users for the report.

Report execution history (detailed report) - Lists reports alphabetically along with the associated package and the timestamp for each time the report was executed. It also shows the total number of times each report was executed and the total number of reports that were executed. It also includes a color-coded pie chart that gives an overview of how often the reports are used.

Report execution history (summary report) - Lists reports alphabetically along with the timestamp for each time the report was run since the logging database was created.

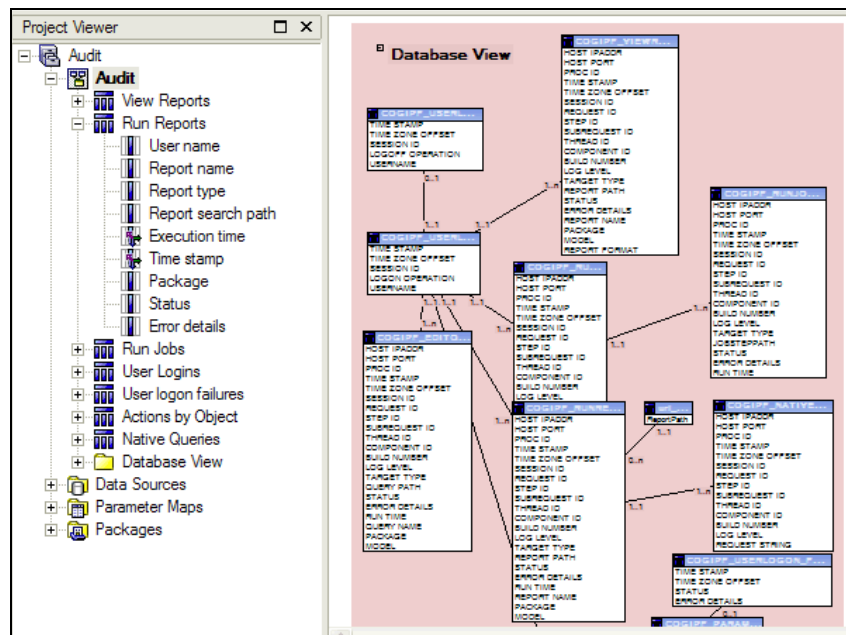
Report usage - Lists reports by frequency of use. For each report, it lists the user and the number of times it was run by the user since the logging database was created. This report can help you determine if there are any reports that are not being used. If so, you may want to remove them.

User session – details - Shows user session details, including the logon time, logoff time, logoff operation, and session duration. It also includes the total amount of session time for each user and the total amount of session time for all users. You can select a date and time range and one or more users.



User session – summary - This audit report shows the average session duration by user. It also shows the total average session duration by user. You can select a date and time range and one or more users.

In addition to these out-of-box reports, and perhaps more importantly, Cognos also provides metadata so that you may create your own reports based off the auditing statistics. The ERD, as well as the metadata folders, are shown below.



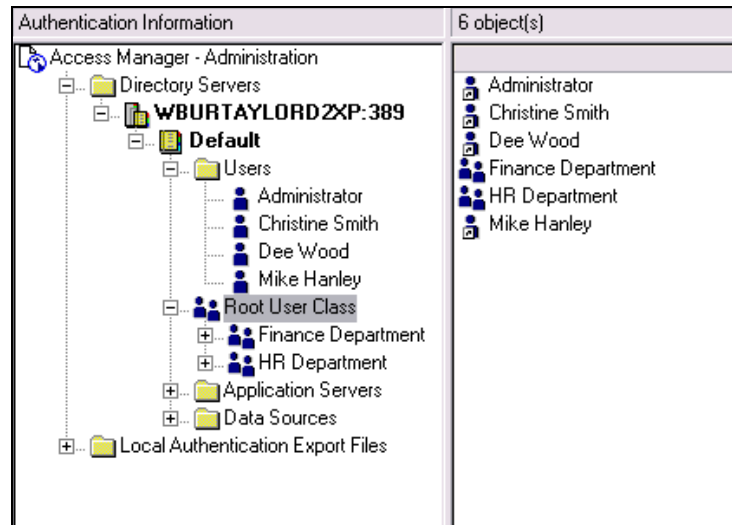
Cognos enables users to access reports and data using a zero footprint web browser. No Cognos software (no applets, downloads, plug-ins) is required on the client tier. Therefore, there is no need to distribute client products to end-users. Notably, and unique to Cognos, even professional authors, those users creating the most advanced and pixel-perfect reports in the environment, can do so with only a web browser, and with no software, applets, downloads nor plugins.

4.1 General Requirements

Desirable Capabilities

4.1.16. GUI for Security Maintenance: The solution must provide a GUI interface for user account and role maintenance that an administrator will use to update roles and groups, create and deactivate accounts, and reset passwords.

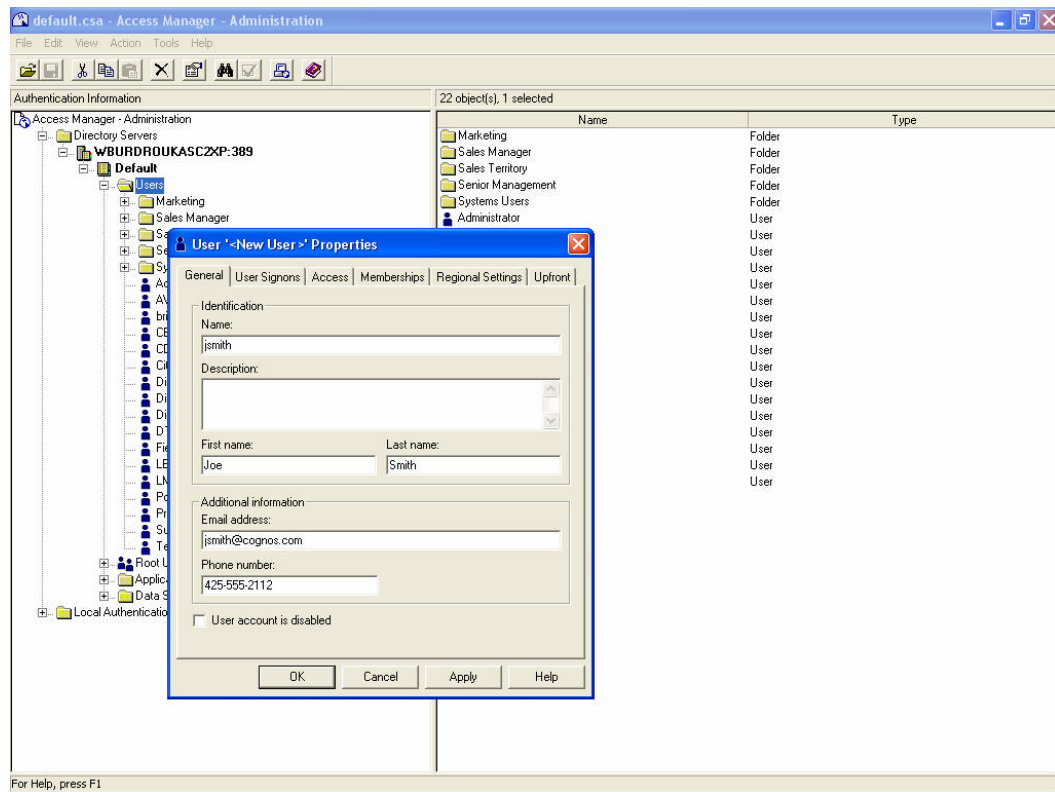
User management is included. The Access Manager console may be used to configure users, groups, roles, database sign-ons, user information, single sign-on, etc.



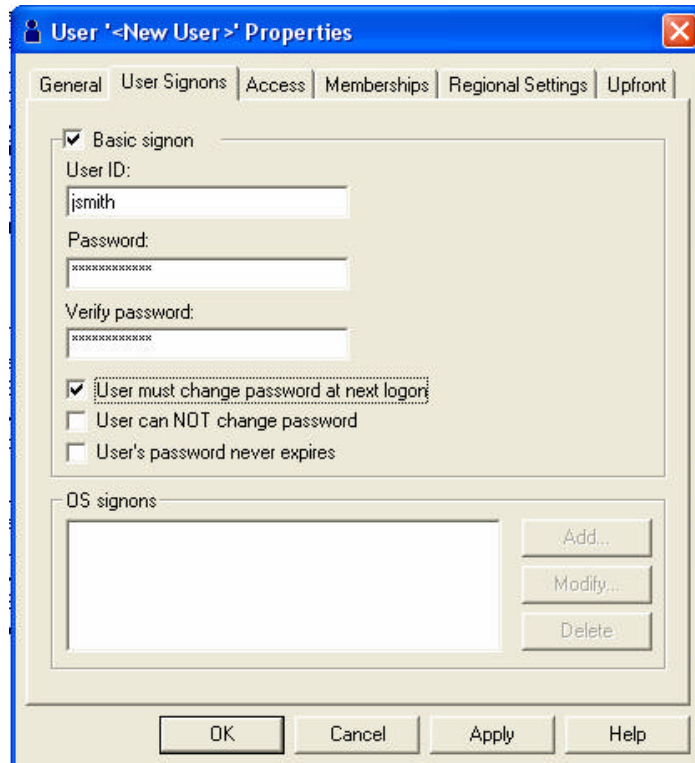
Users, groups and roles can be added easily through the Access Manager GUI environment. Access Manager provides a centralized environment to define, store, and maintain security information for Cognos business information applications.

In one central location, you can set up and maintain secure user access to data, such as cubes and reports, that are created in other Cognos applications. With Access Manager, you can also set up and maintain user signon information and auto-access privileges for the data sources and servers that contain the required data.

The following is an example of setting up a user:

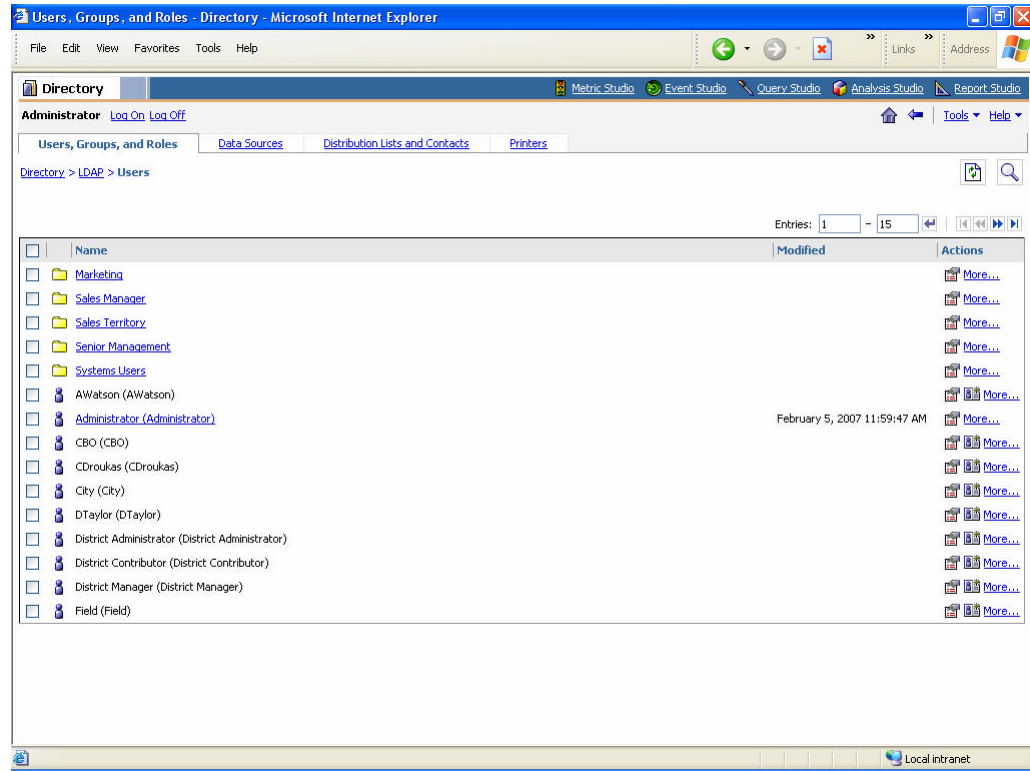
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Sign-on information, password management, and other authentication detail can be maintained within Access Manager:

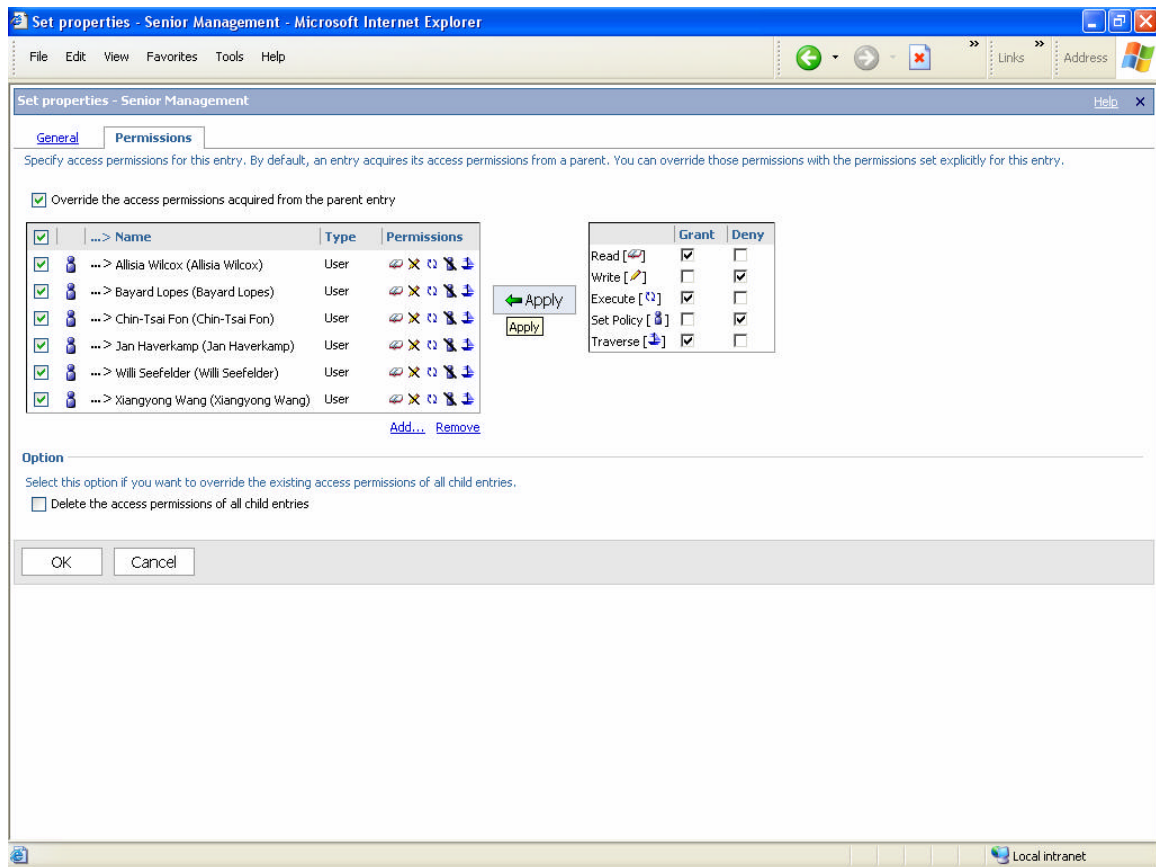


In Cognos 8, you can secure your organization's data by setting access permissions for the entries. You specify which users and groups have access to a specific report or other content in Cognos 8. You also specify the actions they can perform on the content.

When you set access permissions, you can reference both authentication provider users, groups, and roles and Cognos groups and roles.



Setting access permissions for an entry includes creating new permissions or updating existing permissions. You can specify access permissions for all entries in Cognos 8. Some examples of such entries are reports, queries, analyses, packages, agents, metrics, namespaces, groups, users, or dispatchers. You can reference entries from different namespaces.

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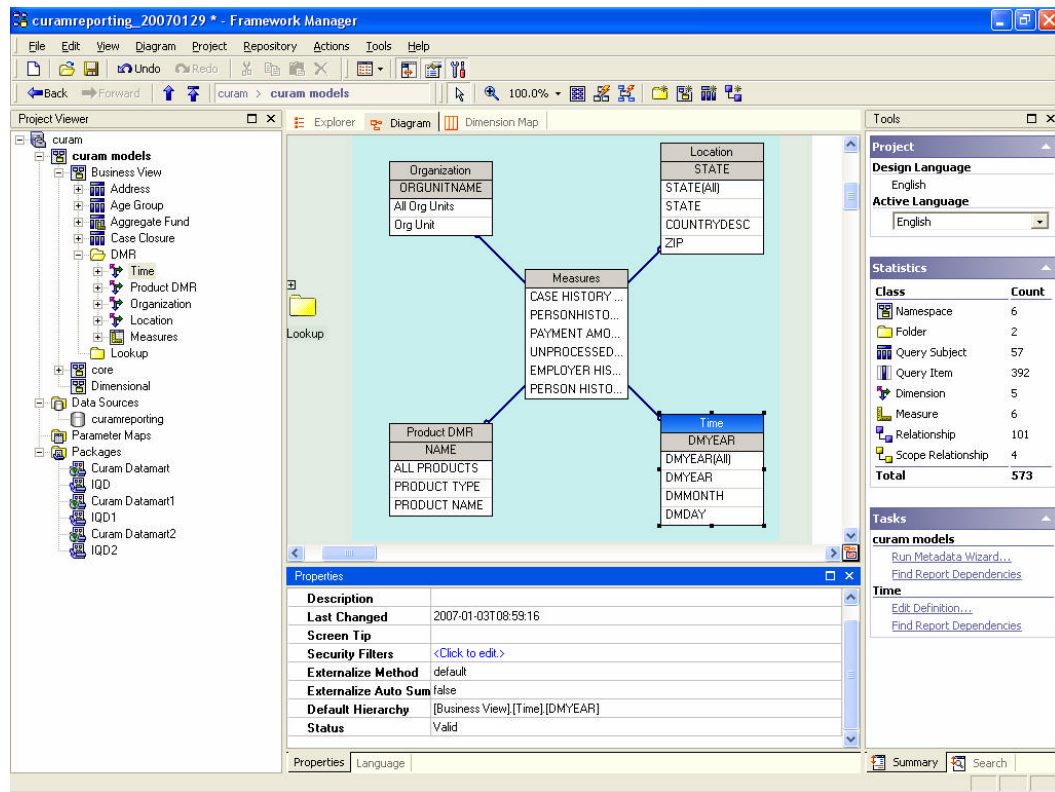
4.1.17. Interface for Development and Administration: It is preferable that development and system administration activities be made accessible via a browser interface conforming to technical standards communicated in these requirements. If client software is needed to complete development, map configuration, or system administration activities, it must be compatible with Windows XP or newer Microsoft desktop operating systems.

Cognos 8 is a fully web based solution from an end-user and administration perspective. Framework Manager is the only client based component that is for the development of metadata. The Framework Manager client is compatible with Windows XP and newer Microsoft desktop operating systems. Other development tools include Report Studio for creating reports. Cognos Connection, the Cognos 8 portal, is used primarily for system administration.

Framework Manager

Framework Manager is a metadata modeling tool. A model is a business presentation of the information in one or more data sources. When you add security and multilingual capabilities to this business presentation, one model can serve the reporting, ad hoc querying, and analysis needs of many groups of users around the globe.

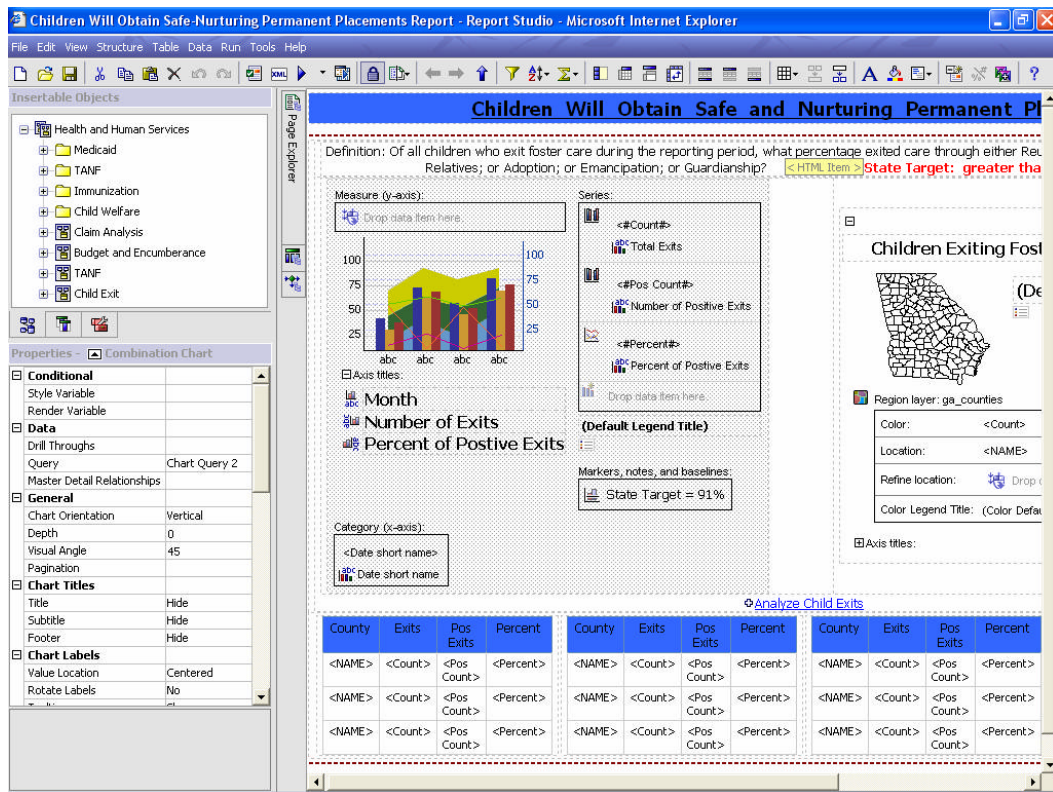
The diagram below shows a sample metadata model being developed within Framework Manager:

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Report Studio

Report Studio is a Web-based tool that professional report authors use to build sophisticated, multiple-page, multiple-query reports against multiple databases. With Report Studio, you can create any report that your company requires, such as invoices, statements, and weekly sales and inventory reports.

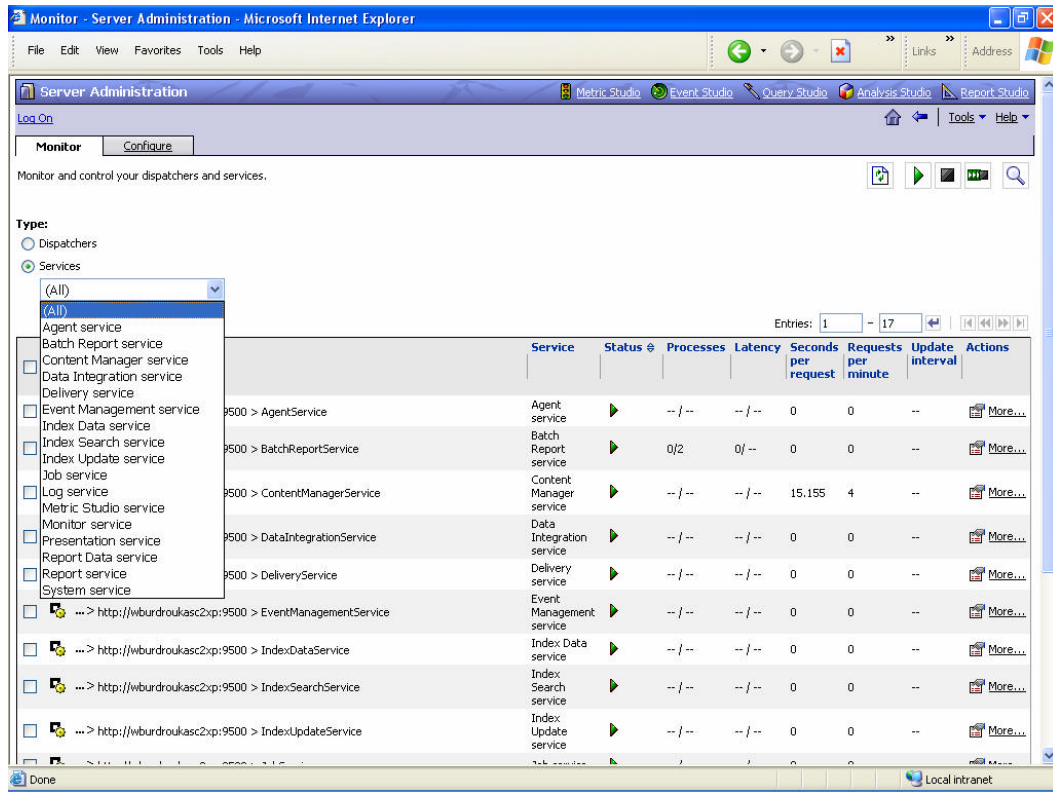
The diagram below is a sample report being developed with report studio.



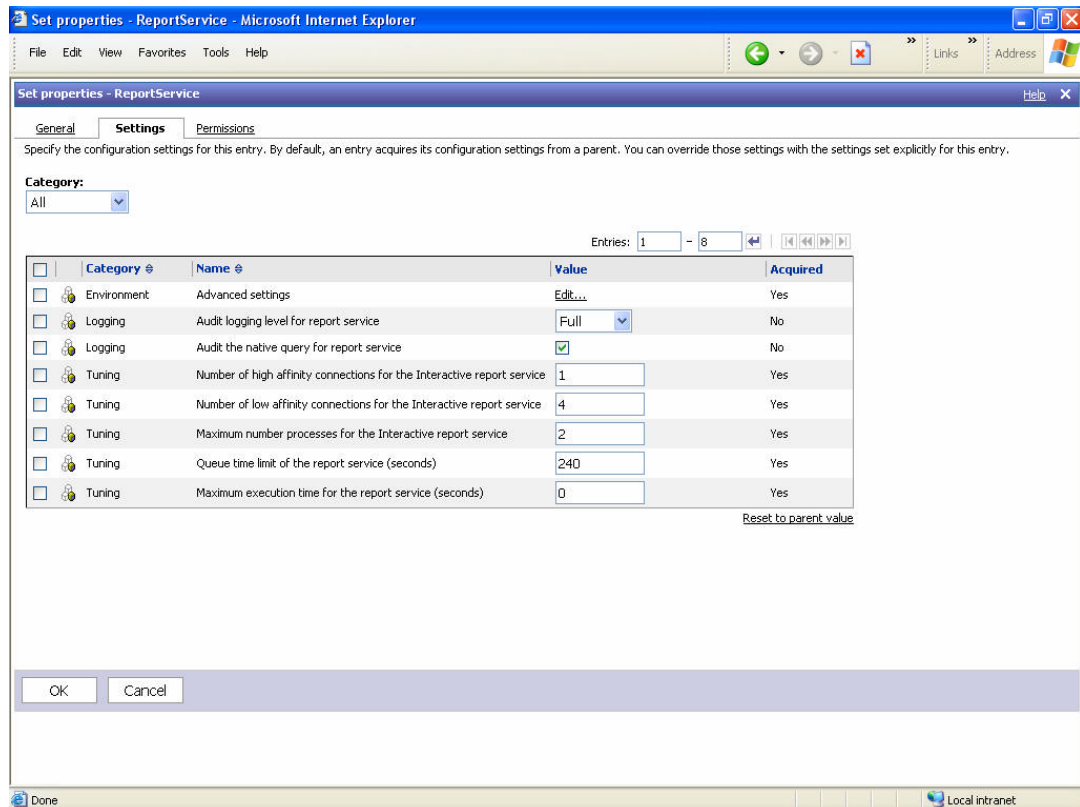
Cognos Connection System Administration

Administrators use Cognos Connection to administer servers, optimize performance, and set access permissions. They also use it for entry administration, including such things as scheduling and distributing reports, agents, and metrics.

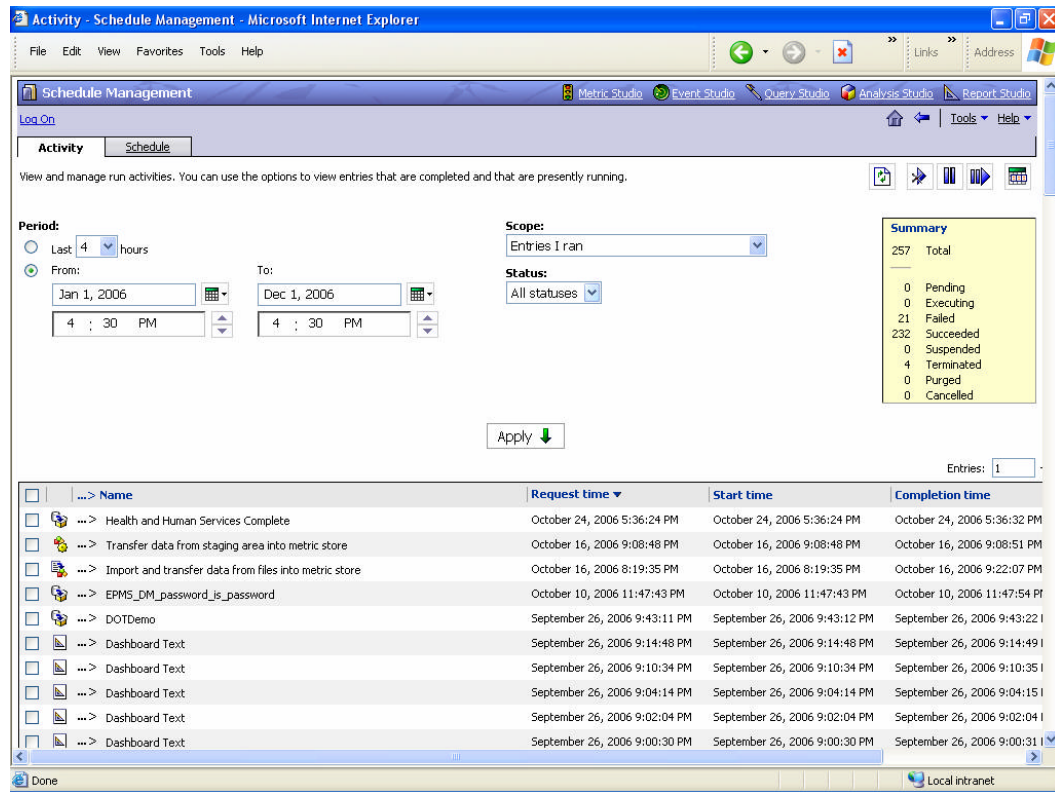
The following diagram shows the many services within the Cognos architecture that can be monitored and managed within the System Administration interface:

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And there are many parameters that can be set within a given service, as depicted in the following diagram:



And all services can be monitored as depicted in the following diagram:



4.1.18. Multiple Data Sources: The solution must allow data from multiple heterogeneous data sources to be joined to produce calculations, grids, and graphic elements.

Yes, Cognos can connect to and join multiple data sources from multiple platforms simultaneously. You can create multiple database connections in a single metadata layer, so that users can pick and choose data assets for reporting and analysis with drag and drop ease to produce calculations, grids, cross-tabs, lists, and graphic elements. This is one of Cognos' unique advantages in that no matter what the end user environment is (Reporting, Querying, Analysis, Scorecarding, Event Management), there is a single metadata layer providing access to multiple heterogeneous data sources, isolating the user from the complexities of facilitating this functionality.

4.1.19. Open Metadata Repository: The solution must include full documentation of the structure of the metadata repository. The documentation must provide complete data models, table cardinalities, and table and field names and descriptions. The contents of the metadata repository must be accessible via SQL queries. The repository should be stored in a non-proprietary RDBMS.

Cognos' Framework Manager is the metadata modeling tool. When you work in Framework Manager, you work in a project. A project (see below) contains a model (see below), namespaces (see below), packages (see below), and data sources. The metadata repository that maintains the metadata model is fully documented and accessible to view the data models, table cardinalities, and table and field names and descriptions.

Project

A project is a set of models, packages, and related information for maintaining and sharing model information. A single project can span many data sources or tables.

Model

A model is the set of related dimensions, query subjects, and other objects required for one or more related reporting applications. Please review the answer to 4.2.06. for a further description of a Model.

Namespace

A namespace uniquely identifies query items, dimensions, query subjects, and other objects. You import different databases into separate namespaces to avoid duplicate names.

Package

A package is a subset of the query subjects and other objects defined in the project. You then publish the package to the server so that the report authors can use the metadata to create reports and ad hoc queries. You can create several packages from the same project, with each package meeting different reporting requirements.

The Package is stored in a non-proprietary RDBMS, providing a metadata repository that is accessible via SQL Queries.

4.1.20. Integration of Product Line: The solution must provide integration of all products from a technical, support, and maintenance perspective. The vendor must provide a single point of contact for maintenance and support of all products. The vendor must provide a single point of contact for sales and account support purposes for all products.

One Product & One Platform: The entire Cognos suite of products is fully integrated on one Framework Manager/One Metadata Layer presented over the web in a Zero Footprint.

Due to the minimal support calls associated with Cognos, annual maintenance is the lowest in the industry allowing for a VERY low Total Cost of Ownership. Training and technical support and maintenance is less technical and results in faster, easier and successful implementation.

4.1.21. Linux Support: The solution must provide versions of server based products certified for compatibility with SUSE and/or Red Hat Enterprise Linux. Versions for other OS environments such as Windows, AIX, HPUX, and Solaris, are highly desirable.

The Cognos 8 server is certified compatible on a Red Hat Enterprise Linux Server. Additionally, there is support for running the Cognos 8 Server on Windows, AIX, HP-UX and Solaris. A list of platforms is given below:

- § Windows 2000 Professional Edition SP4+(1)
- § Windows 2000 Server Edition SP4+(1)
- § Windows 2000 Advanced Server Edition SP4+(1)
- § Windows 2000 DataCenter Server Edition SP4+(1)
- § Windows XP Professional SP1 and SP2
- § Microsoft Windows 2003 Server SP1, Web Edition
- § Microsoft Windows Server 2003 SP1, Standard Edition
- § Microsoft Windows Server 2003 SP1, Enterprise Edition



- § Microsoft Windows Server 2003 SP1, DataCenter Edition
- § Microsoft Windows Server 2003 (all editions)
- § HP/UX 11i Version 1.1 (11.11) (PA-RISC)
- § HP/UX 11i Version 2 (11.23) (PA-RISC)
- § AIX 5.1 (PowerPC)
- § AIX 5.2 (PowerPC)
- § AIX 5.3 (PowerPC)
- § Solaris 8 (SPARC)
- § Solaris 9 (SPARC)
- § Solaris 10 (SPARC)
- § Red Hat Enterprise Linux AS 3.0 Update 2+
- § Red Hat Enterprise Linux ES/WS 3.0 Update 2+
- § Red Hat Enterprise Linux AS 4.0
- § Red Hat Enterprise Linux ES/WS 4.0

For a thorough list of supported environments, please use the following link:

http://support.cognos.com/en/support/products/cognos8mr2_software_environments.html

4.1.22. Geographic Distribution of Servers: The solution must allow geographic distribution of servers to minimize WAN traffic, but also support propagation of application updates from a centralized location by a system administrator.

The Cognos architecture is based a scalable, Web Services based architecture that supports whatever geographic distribution of servers is favored by our customers. The system is architected to leverage distributed environments for performance, scalability, and fault tolerance. Cognos leverages a Service oriented Architecture that allows for multi-tiered (taking advantage of multiple servers) and/or multi-node configurations (taking advantage of multiple processors). As data size, report frequency and complexity increasing, administrators can add additional processing easily. Cognos can scale both up and out to handle increase demand. In addition Cognos has a thorough sizing exercise based on reporting requirements, data sizing, frequency and archiving used to evaluate and recommend and current and future hardware specification.



4.2 Report Writer Requirements

Required Capabilities

4.2.01. Ability to Enter Custom SQL for Value Lists: The solution must allow report developers to modify or create SQL statements that will populate the selection boxes or text boxes associated with a specific parameter.

Cognos 8 report development allows for the ability to modify and/or create Custom SQL statements for selection and/or text boxes. By default, report design will utilize generated SQL statements, which are highly optimized, for any selection and/or text boxes for the purpose of populating them with values. The report developer has the ability to modify the properties of these boxes, and enter Custom SQL.

4.2.02. Ability to Save Prompt Values: The solution must allow report developers and end users to set "default" selections for prompt values along with reports. Developers should have the option to save a copy of the report with the parameter selection values "fixed" so that the "flexible" report can be used for a more specific need.

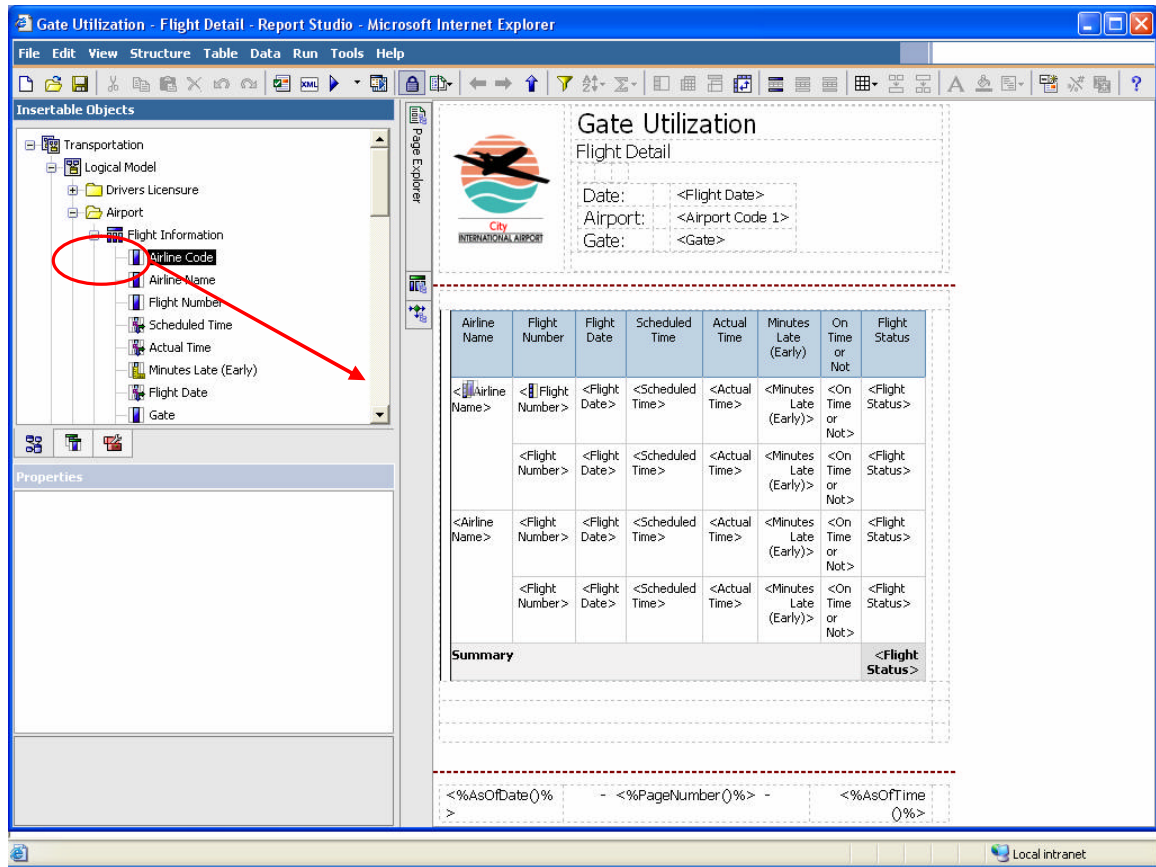
During report design, a report developer can set one or more default selection values for any prompt within a report. This is set through a property setting within the report definition. The default prompt values can either be a fixed setting or overridden by the user at run time.

Additionally, a version of any report can be run and saved within the Cognos Connection portal (or any third party portal) that has the parameter selection values fixed to provide for it to be used for more specific needs. When a report is run, the prompt is presented, and the user selects the values within the prompt, and subsequently the prompt values are saved along with a version of the report.

For example, a typical requirement is to save snapshots of reports at a point in time, based on fixed criteria. These snapshots establish a version of a report at a point in time that can be used for comparison to future ran versions of the same report.

4.2.03. Addition of Data Elements to Reports: The solution must provide the ability to drag and drop selected columns into the report via a GUI.

Within the report design tool (Report Studio), an Insertable Objects pane provides access to data elements in an explorer like interface. Data elements can be dragged and dropped into selected columns within the report. The interface for Report Studio is a web-browser based GUI. Below is a sample window showing the Insertable Objects pane in the upper left hand side of the window, and the report design canvas in the right hand side of the report.



4.2.04. Banded Reports: The solution must allow developers and end users to specify banding options, such as groups to band together, what duplicative values should be suppressed, what group calculations (sum, max, min, avg, etc.) should be produced, when new page breaks should be forced, and what group headers should be repeated.

Developers and end users can specify banding options as part of the report development environment. Groups can be banded together, allowing for suppression of duplicate values, and providing group calculations, new page breaking and repeating group headers. A sample of a banded report is given below, whereby the totals appear before the details and values are indented.

Product name	Quantity	Revenue
Camping Equipment (Opportunities: 16,409)	866,234	\$89,713,990.92
Cooking Gear (Opportunities: 4,160)	198,676	\$5,401,132.08
TrailChef Cup	31,834	\$218,416.30
TrailChef Single Flame	10,614	\$666,347.78
TrailChef Water Bag	41,770	\$244,414.16
TrailChef Kettle	9,900	\$118,595.16
TrailChef Utensils	15,928	\$268,084.56
TrailChef Double Flame	14,510	\$1,851,635.38
TrailChef Kitchen Kit	25,964	\$570,975.16
TrailChef Deluxe Cook Set	3,744	\$445,494.14
TrailChef Canteen	31,712	\$374,674.96
TrailChef Cook Set	12,700	\$642,494.48
Lanterns (Opportunities: 4,477)	345,096	\$10,539,200.16
Firefly Lite	13,558	\$179,749.72
EverGlow Lamp	40,696	\$1,001,374.00
Firefly 4	45,688	\$1,205,443.84
EverGlow Double	16,304	\$742,592.92

4.2.05. Browser Based Ad-hoc report Creation: The solution must provide ad-hoc browser-based reporting functionality to empower non-technical users to create, modify, and publish reports and charts.

Yes. Query Studio is a browser-based ad-hoc reporting tool for creating simple queries and reports in Cognos 8, the reporting solution. In Query Studio, you can:

- § view data
Connect to a data source to view data in a tree hierarchy. Expand the query subjects to see query item details.
- § create reports
Use the data source to create reports, which you can save and reuse. You can also use an existing report to create a new report.
- § change the appearance of reports
Improve the layout of your report. For example, you can create a chart, add a title, specify text and border styles, or reorder columns for easy comparison.
- § work with data in a report
Use filters, summaries, and calculations to compare and analyze data. Drill up and drill down to view related information.

4.2.06. Business Centric Organization: The solution must allow users to select from logically grouped report objects, such as attributes and facts. Note that the logical groupings shall be maintained by a system developer. The solution must facilitate the development of groupings and object naming based upon a business user's perspective of the data that isolates users from database or other technical perspectives.

The Framework Manager model is a metadata layer that adds value to a data source in several ways. Most importantly, it provides a business centric view of the information in the source data to simplify building reports, analyses, and queries. The business view can:

- § organize data items in folders that represent business areas for reporting, such as attributes and facts
- § format data items using numeric, currency, date, time, and other formats
- § present multilingual folder and item names, descriptions, tips, and data so that users can operate in their language of choice
- § automate the generation of SQL queries sent to the relational data source
- § specify default prompting

The system developer maintains the model within Framework Manager, and publishes the model for report authors and end users to work with. The view of the model that the report developers and end users access is the business view, which isolates them from database or other technical perspectives, e.g. table joins, RDBMS naming conventions, etc.

4.2.07. Cascading Prompts: The solution must support cascading prompts. Parameters for reports shall be able to cascade—this will allow for a parameter used for one option to be used as a filter for other parameters for the report. For example, allow users to select a city in the district and then only officers in that city will display in the subsequent officer's selection box.


Cognos 8 supports Cascading Prompts whereby, one prompt filters the next. With this prompt you can multi-select each prompt. An example of a cascading prompt of Counties to Districts to Case Workers for a Health and Human Services Medicaid application is given below.

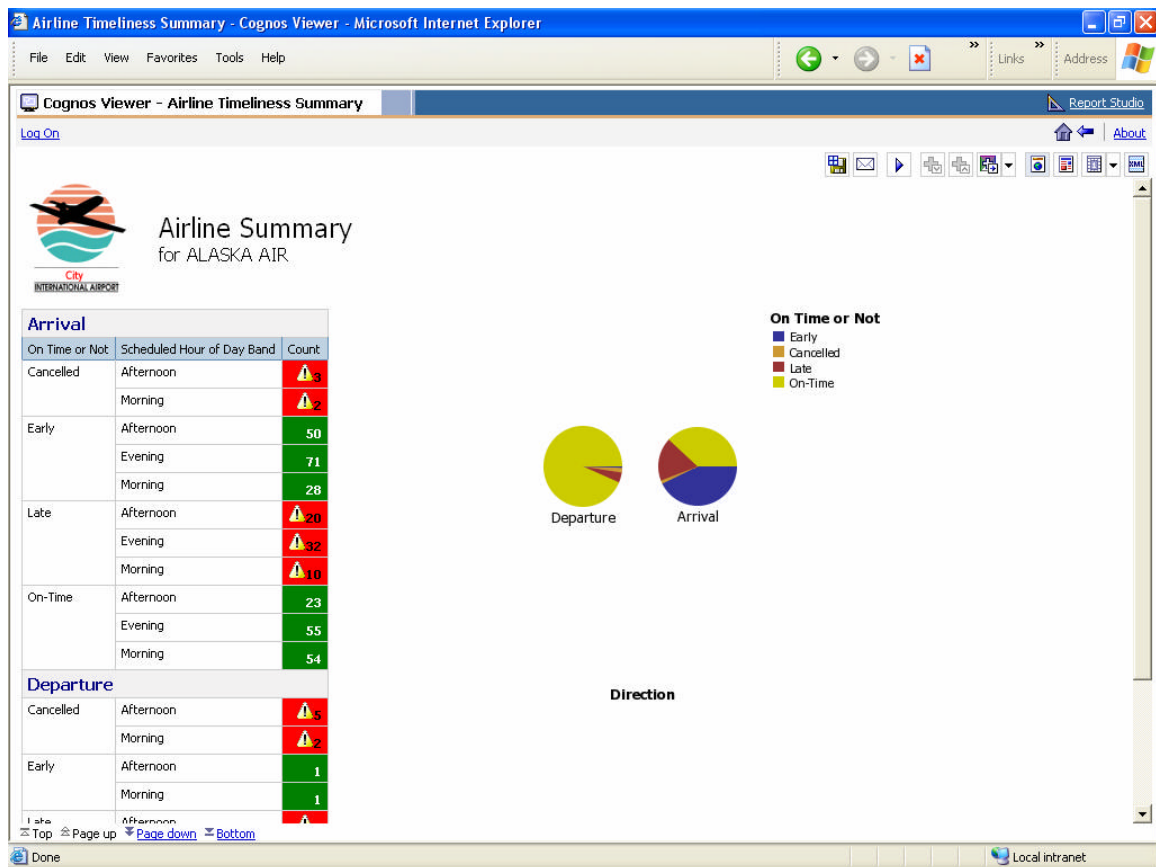
The screenshot displays a web browser window titled "Case Load Report by County (Cascade Prompt) - Cognos Viewer - Microsoft Internet Explorer". The browser's address bar shows a local intranet path. The report content is organized into three main sections, each with a title and a list of items:

- Cases by County Prompt Page**: This section contains a prompt titled "Choose County(s)". It features a list of counties: Adams (checked), Jefferson, Madison, Monroe, and Washington. Below the list are links for "Select all" and "Deselect all", and a "Reprompt" button.
- Choose District(s)**: This section contains a prompt titled "Choose District(s)". It features a list of districts: DW14-T42 (checked) and DW14-T43 (checked). Below the list are links for "Select all" and "Deselect all", and a "Reprompt" button.
- Choose Case Worker(s)**: This section contains a prompt titled "Choose Case Worker(s)". It features a list of case workers: Goodrich, George (checked), Howard, Lashanda (checked), Huynh, Joseph (checked), Nebron, Crystal (checked), Noel, Eugene (checked), Rucker, Deona (unchecked), Sanders, Margaret (checked), and Steele, Kevin (checked). Below the list are links for "Select all" and "Deselect all", and buttons for "Cancel" and "Finish".

4.2.08. Conditional Formatting: The solution must support conditional formatting of report elements based upon user specified thresholds or triggers.

Yes, users can create conditional formatting such that high, medium and low values appear as red, yellow and green, respectively. This is not fixed, however you can create any range with any type of output formatting such as background color, height of bar chart, size of font and other formatting techniques.

Below is an example of conditional formatting for the count of late arrivals for a chosen Airline based on a scheduled time of day band. The conditional formatting both includes color coding, and a drillable image  allowing the end user to click and run a report providing additional detail about the count.

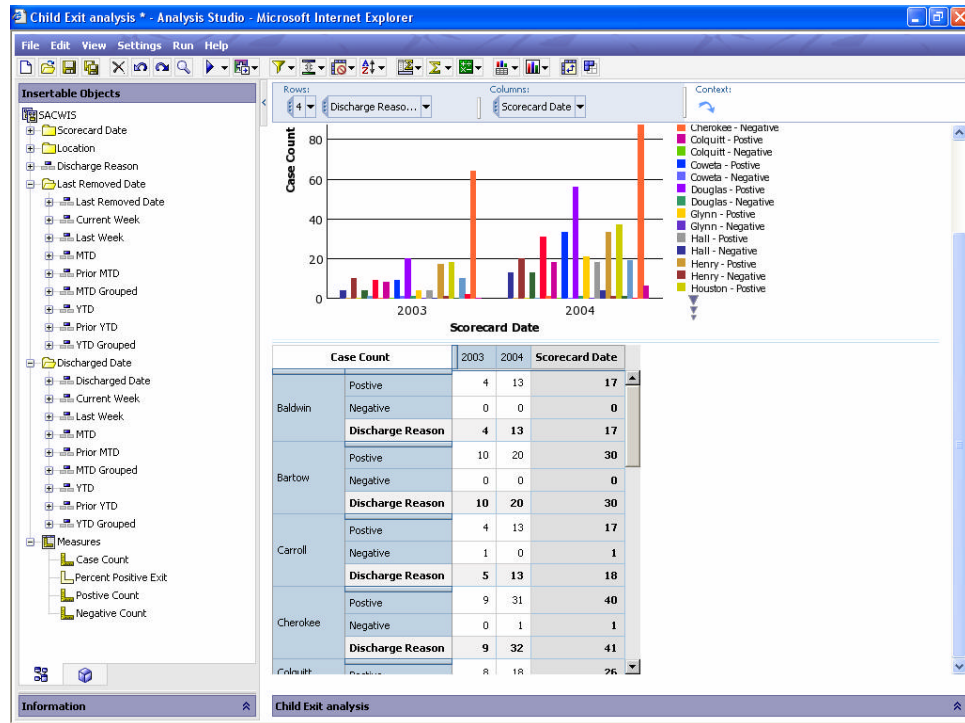


4.2.09. Cross Tabular Reports: The solution must support the display of data in a cross tabular report format. The solution must allow users to change the fields used to produce the columns and rows of the cross tabular report via GUI functionality. The solution must not require that a database query be re-executed to produce a new cross tabulation of data previously retrieved for a report. The solution must allow a user to undo changes in cross tabulation layout.

Cognos offers a drag and drop, code-free environment for ad hoc queries and professionally authorized reports. This technique can be used for intuitive lists, cross-tabs, advanced reports like balance sheets and graphical, interactive reports such as dashboards.

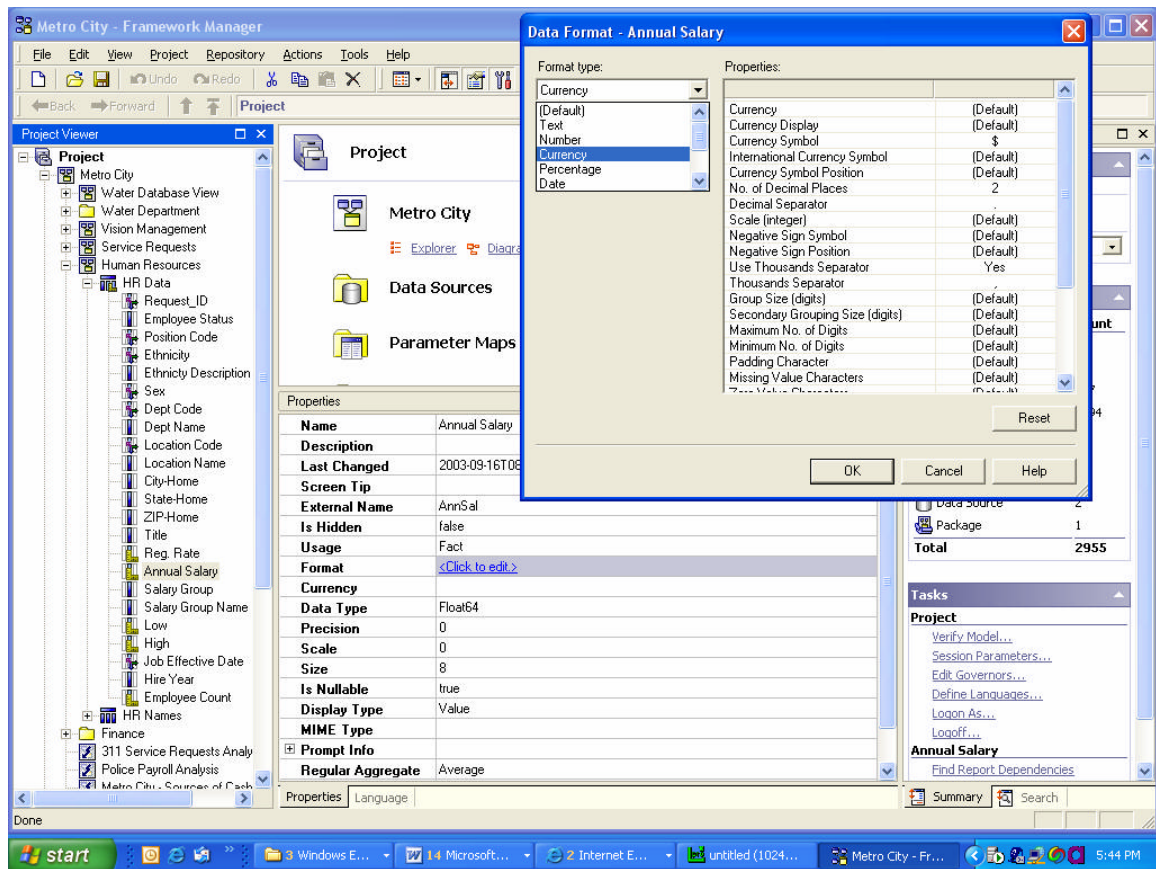
Cognos 8 includes a robust multidimensional analysis capability: Analysis Studio. Users can dice, slice, drill up/down/across, define custom calculations, subsets, etc. Cognos Powercubes are one of the industry's most widely deployed OLAP solutions.

You can use Analysis Studio to compare and manipulate data to understand the relationships between data and its relative importance. Whether you want to assess rising care costs or to identify top performers, Analysis Studio provides the filtering, calculating, and sorting support you need for analysis.



4.2.10. Default Display Formats: The solution must provide the ability to define a default display format for report elements based upon their underlying data type, such as date, time, numeric, currency, and text.

Default display formats can be established in the metadata layer for any report element, based on the underlying data type. These include data, time, date time, numeric, currency and text. An example of setting the data format for a data element called "Annual Salary" is given below. The default display format will be inherited for all reports that utilize the report element.

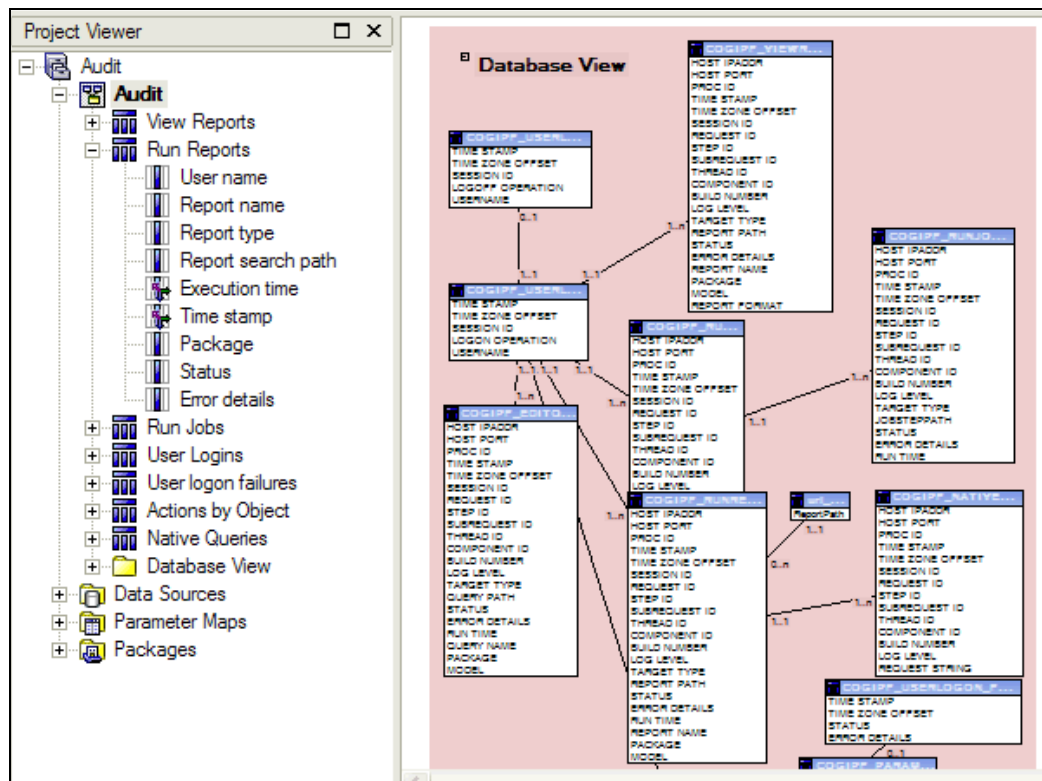


4.2.11. Developer Tool GUI: The solution must provide a Graphical User Interface for system development activities such as: identification of data sources and connection parameters; and, population of end user/business names for database fields, calculations, filters, and other user selectable report elements.

Framework Manager is a metadata modeling GUI tool. A model is a business presentation of the information in one or more data sources. When you add security and multilingual capabilities to this business presentation, one model can serve the needs of many groups of users around the globe.

The Framework manager is used to:

- \$ create a project
- \$ prepare a model for reporting
- \$ create and publish a package



4.2.12. Drill Hierarchies: The solution must allow the system developer to define hierarchies (roll-ups/drill-downs). Objects that are included in defined hierarchies should provide end users with interactive drilling capabilities by default whenever they are used in report tables or graphics. The developer should have the option to override this behavior for specific reports and/or users.

Hierarchies can be created both at the ETL layer, Metadata Layer and OLAP modeling layer. Hierarchies are used for common dimension reporting and drill down using the Cognos interfaces. Simple drag and drop techniques are used for stacking data hierarchies.

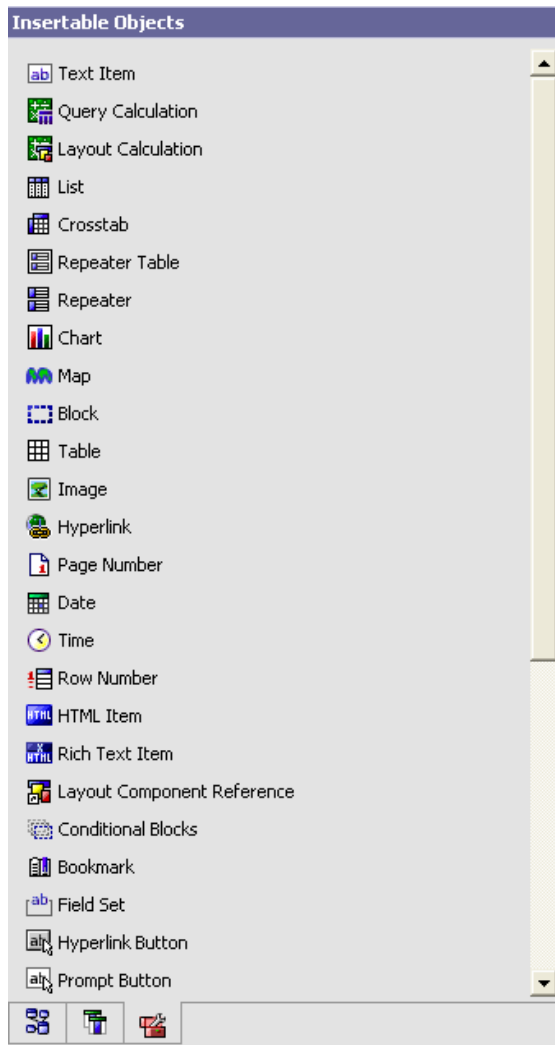
4.2.13. Drilling: The solution must provide the ability to drill up or down a defined hierarchy of data via the Web based GUI. The hierarchies will have been previously defined in the solution's metadata by the system developer.

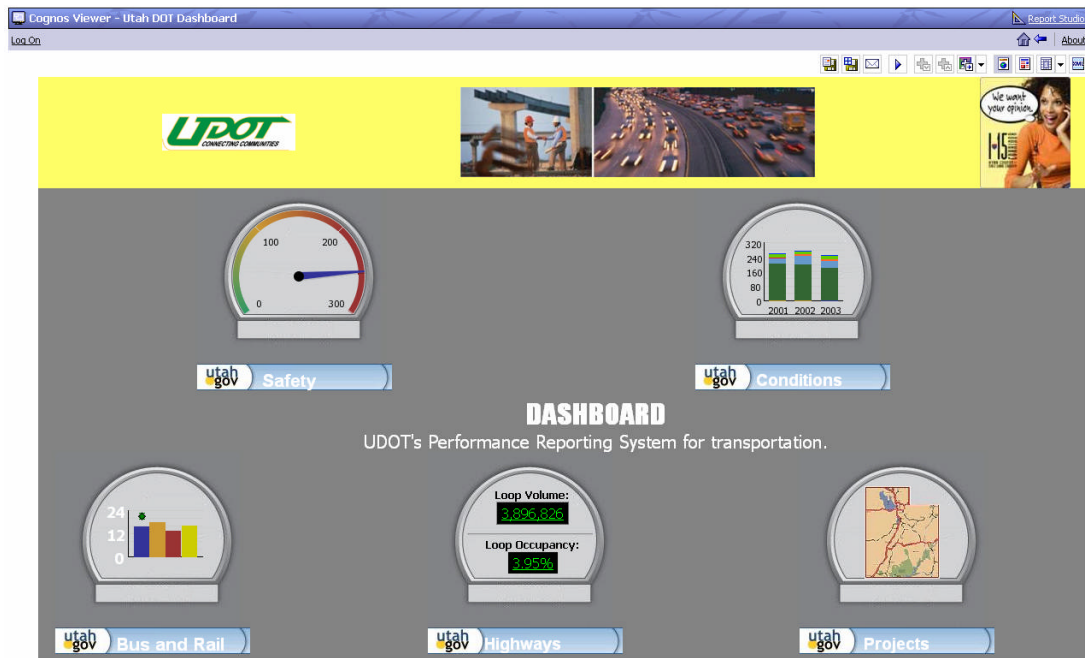
Cognos 8 includes a robust multidimensional analysis capability: Analysis Studio. Users can dice, slice, drill up/down/across, define custom calculations, subsets, etc. Cognos Powercubes are one of the industry's most widely deployed OLAP solutions. Additionally, Cognos 8 gives the user the ability to author ad hoc queries and managed reports against dimensional data, cube or relational, with drill down capabilities created automatically.

Drill down is defined by the number of child dimensions within a parent. You can drill-up by click the lowest dimension or right-mouse click for a speed menu. Drill across can be defined as drill from one schema of data to another schema of data based on a common dimension. With Cognos you can drill from enrollment count by term and college to accounts payable by term and college. You can do this with Cognos with either swapping out the measure item such as count or accounts payable amount or drilling from cube to cube...drilling across is one click away.

4.2.14. Embedded Images: The solution must provide the ability to embed static images, such as logos, from jpg, gif, bmp, and other file types into the report and control the formatting and sizing of the image on the report.

There are a variety of Insertable objects that can be placed anywhere within a report. This includes text, graphs, hyperlinks, audio, videos, GIS maps, date objects, time objects, images (jpg, gif, bmp, etc.), bookmarks, etc. Below is a sample view of some of the Insertable objects. The way this is accomplished is by selecting the object you wish to insert into a report, dragging and dropping it into the location on the report that you wish to display it, then setting any properties to render the object to the desired representation.

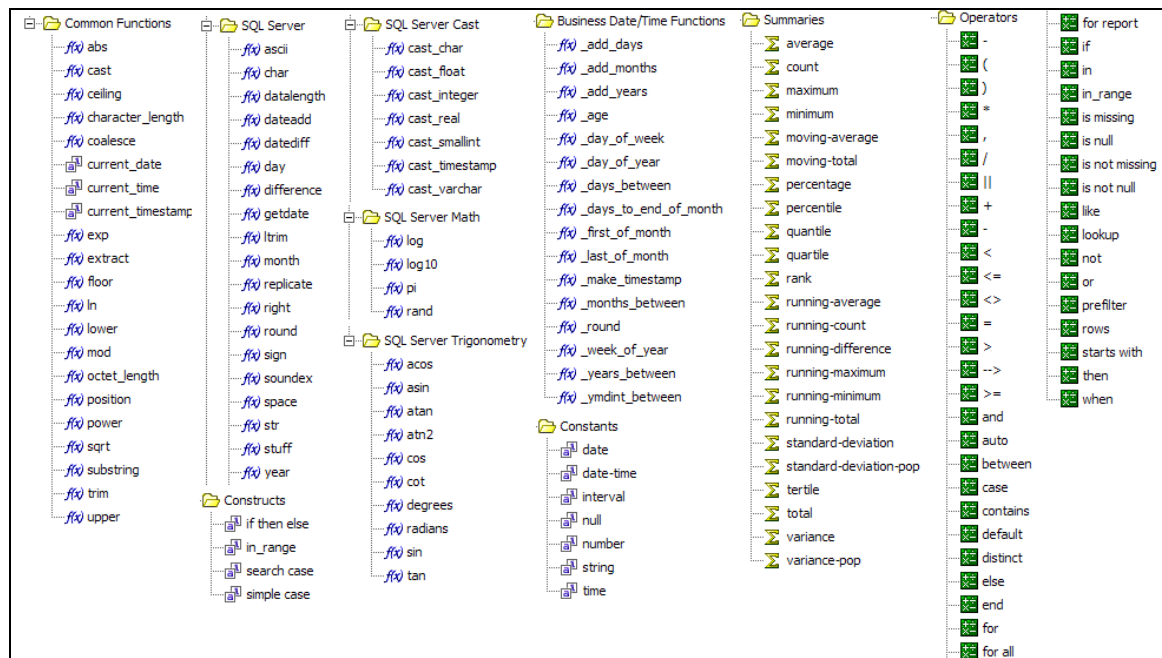




4.2.15. Formulas Stored in Metadata: The solution must allow a system developer to store the definition of derived objects within the solution's metadata. When a report that includes a derived/calculated object is run, the solution must retrieve the definition from the metadata. The solution will use the formula stored in the metadata to determine what source elements should be retrieved from the database, and how to use them to calculate the derived object. If the definition of a calculated object is updated, all reports, graphs, filters, etc. that use a calculated object will use the updated object by default.

You can create calculations (i.e. Formulas) to provide report authors with calculated values that they regularly use. Calculations can use query items, parameters, variables, calculated members, expressions, and expression components, such as functions. These calculations can be defined and stored within the metadata, and retrieved in a variety of ways: By an End-user as part of a query within the Query Tool (Query Studio); embedded in report definition by a report developer using the Report Tool (Report Studio); retrieved by a power user as part of an analysis in the Analysis Tool (Analysis Studio). The unique advantage that Cognos offers is that each of the tools (i.e. Studios) access the same metadata and ensure that each user is presented with a single version of the truth.

Any of the following functions, and more, may be customized, defined and centrally managed in metadata:

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4.2.16. General Calculation Requirements: The solution must provide users with built-in/predefined functions, such as ranks, averages, sums, medians, rate of change (trending), and other statistical and mathematical functions.

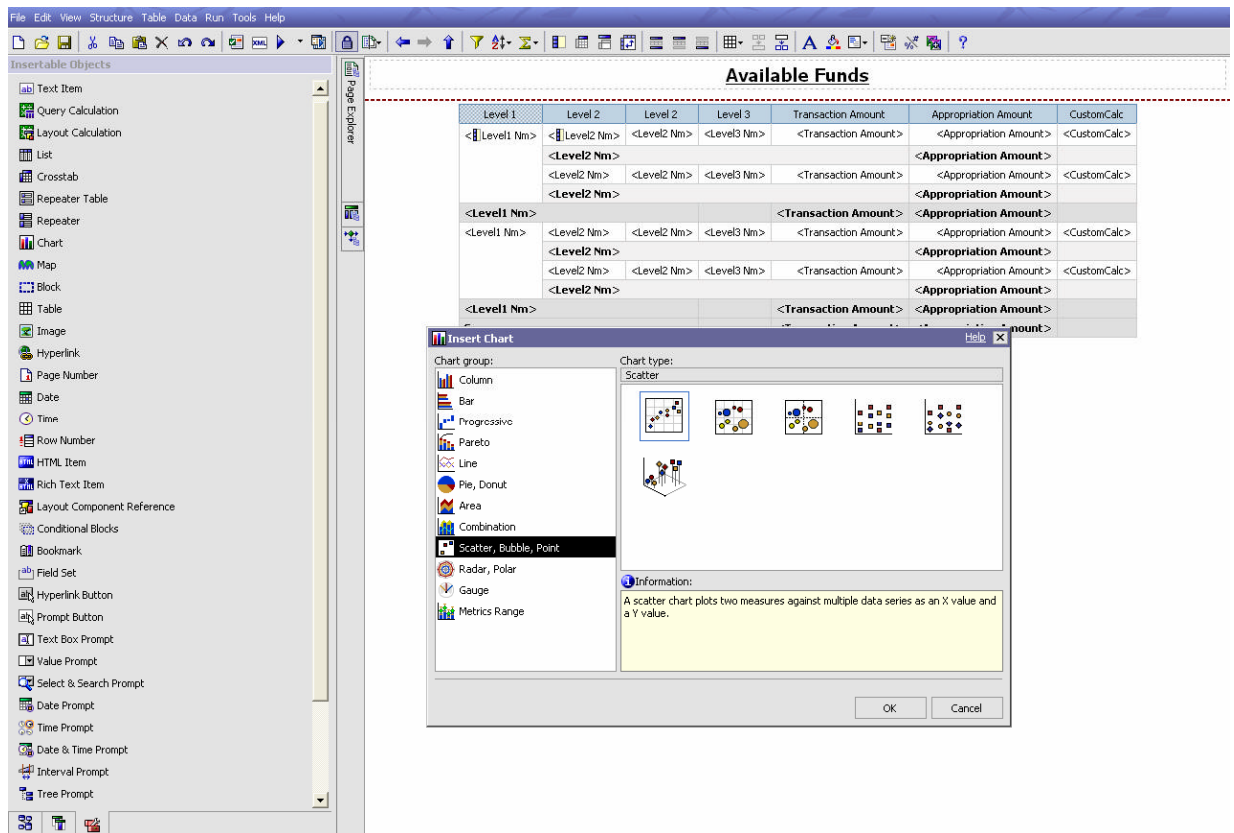
Cognos 8 contains a huge array of mathematical and statistical functions which can be used to detect trends in data. These functions can be used in Alert Studio to create agents that monitor data to detect trends, anomalies, etc., and then alert the appropriate individuals via email, pager alert, etc. Some of the statistical functions built into the product include:

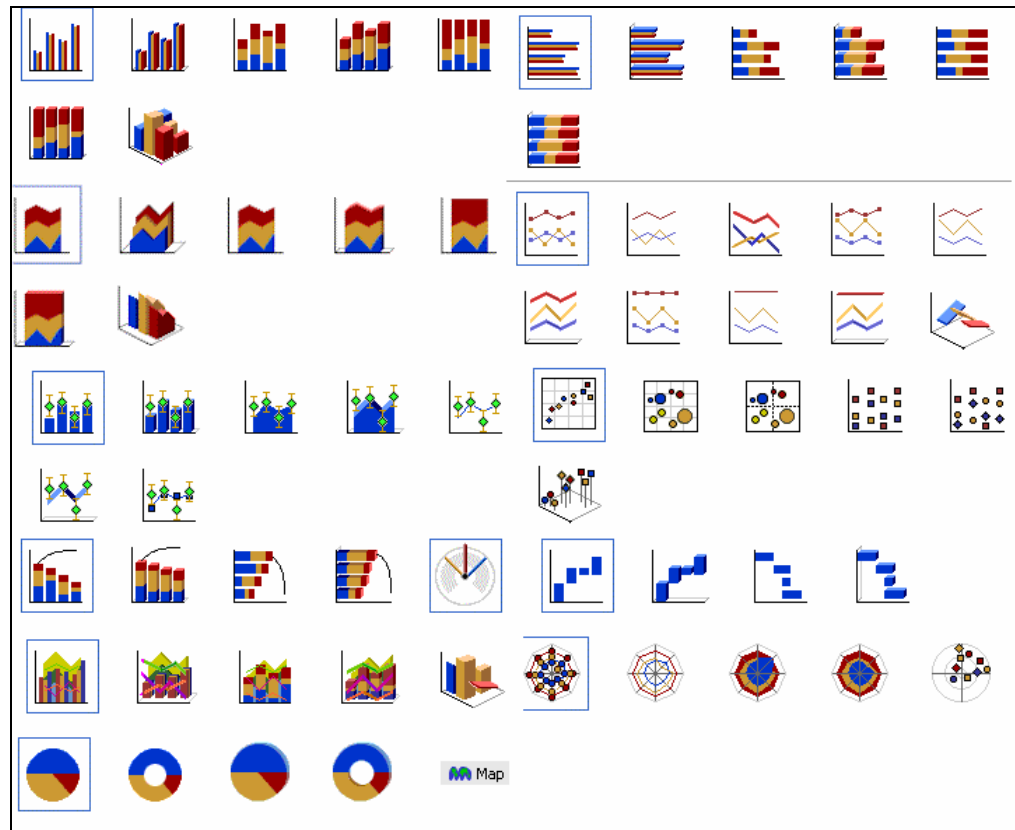
- § Aggregate
- § Average
- § Count
- § Maximum
- § Median
- § Minimum
- § Moving average
- § Percentage
- § Percentile
- § Quantile
- § Quartile
- § Rank
- § Running average
- § Running count
- § Running difference
- § Running maximum
- § Running total
- § Standard deviation
- § Variance
- § Variance in population

Additionally, other statistical functions can be created using the function editor. Most (not all) functions are shown in 4.2.15.

4.2.17. Graph Types: The solution must provide the option to display data using the following graph types: bar graphs, scatter graphs, histograms, specialized statistical graphs, pie charts, and line graphs.

A large array of graph types is available in Cognos 8. Bar and columns graphs (stacked clustered, 2D and 3D), pie and donut charts (2D and 3D), line graphs, scatter graphs, gauges, bubble charts, area graphs, and combination charts, are among the many types available. Each graph type has a wide array of attributes that can be adjusted by the report author. Fonts, borders, fill effects, color palettes, background color, font characteristics, legend position and title, chart tiles, axis characteristics, etc. can all be modified.





4.2.18. Graphing—Sizing and Placement: The solution must provide users with the ability to specify size and placement of the graph within a report or dashboard via GUI functionality.

Graphing properties can be modified to specify size, placement and a variety of other attributes of a graph within a report or dashboard. This is handled through the report studio GUI development environment.

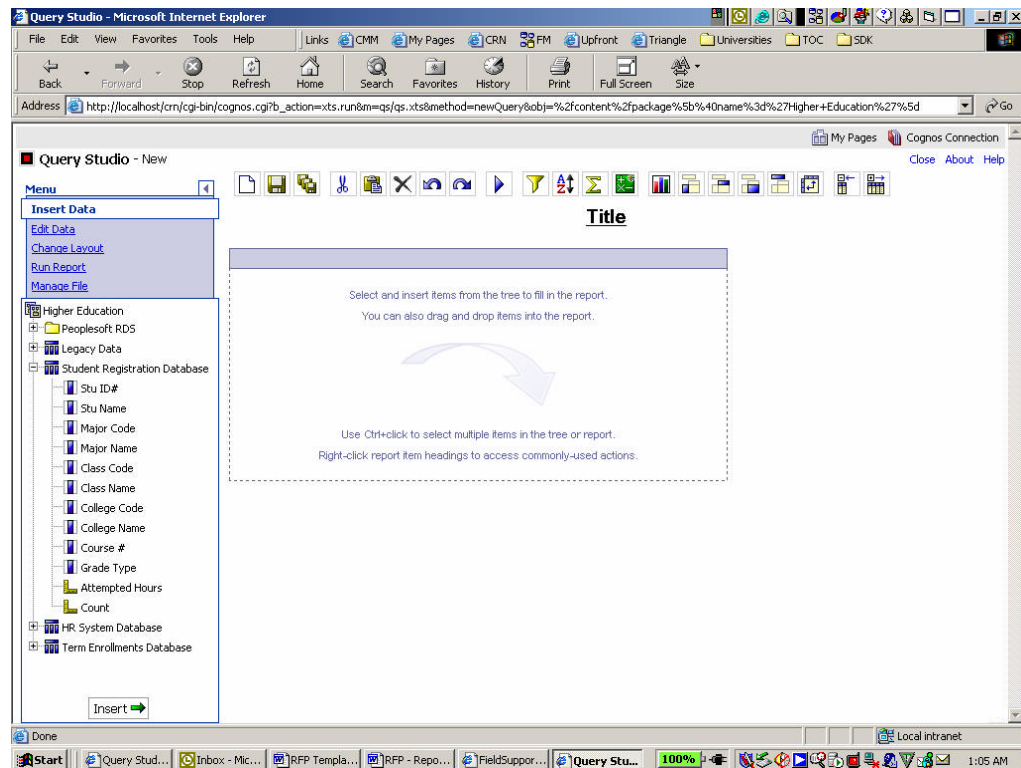
4.2.19. GUI Based Query Creation: The solution must provide a GUI for end users that allows users to create new (and modify existing) queries through a drag and drop process. The GUI must display a list of defined objects that can be included in the query as result elements and filters. End users must not be required to enter SQL syntax to create queries. End users must not be required to specify table join fields or relationships which should be predefined by the system developer.

Cognos defines an Ad-Hoc query as one wherein users start from a blank page, without any prior structure, and from that point, choose their own data, their own rows, their own columns, their own filters, their own calculations, in a business-user-friendly environment that is 100% browser-based with no applets, downloads, plugins or client software. Ad-Hoc users are typically a smaller community of individuals. These users have varied and unpredictable needs but do necessarily not know SQL, nor the target database(s) they are querying.

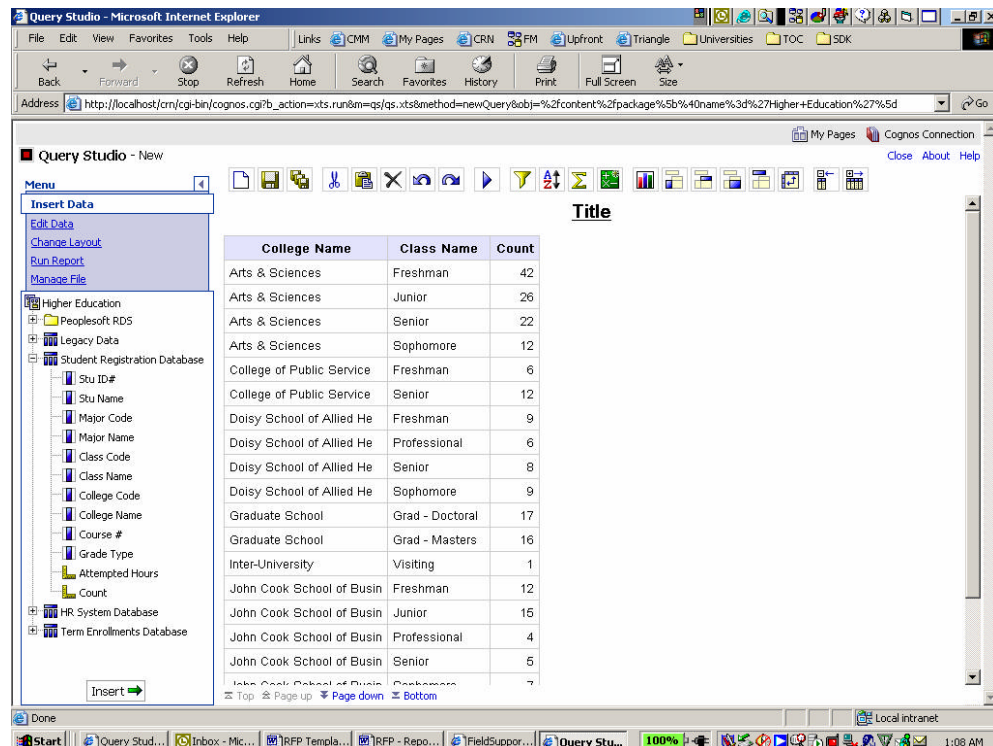
Cognos provides a true Ad-Hoc query environment that allows these users this access in an easy to use interface. Other vendors will try to pre-create prompted reports to cover some Ad-Hoc query needs – however these environments do not go far enough in giving these power users access to information.

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The Ad-Hoc interface displays on the left hand side all of the tables/views/columns/fields to which the individual user has access. This may include information from multiple databases.

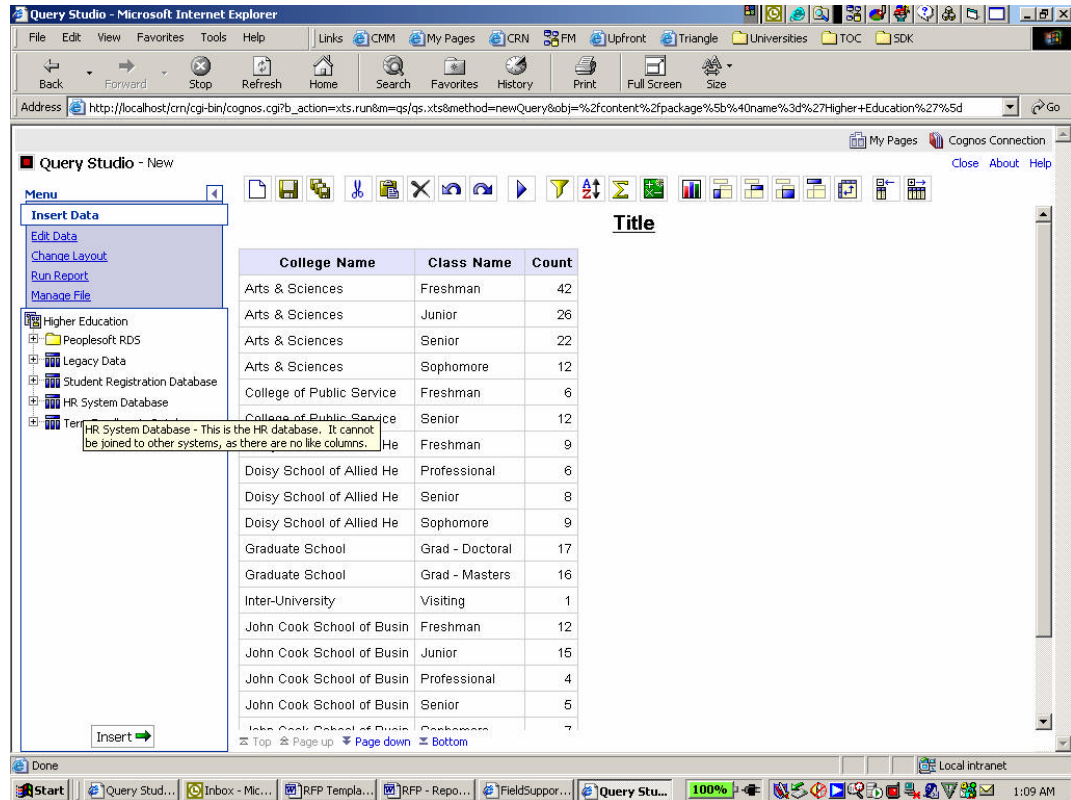


Data can be added to the report simply by drag-and-dropping it into the query window or by clicking on the item itself:



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All of the joins and cardinality have been established by the administrators beforehand, freeing users up to simply ask their business questions. Descriptions of each item are also available to the end user by simply hovering the mouse over the column or table.



Typical capabilities such as grouping, sorting, and filtering can be done directly from the top toolbar.

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Query Studio - Microsoft Internet Explorer

Address: http://localhost/crn/cgi-bin/cognos.cgi?b_action=xts.run&m=qs.qs.xts&method=newQuery&obj=%2fcontent%2fpackage%5b%40name%3d%27Higher+Education%27%5d

Query Studio - New

Menu: Insert Data, Edit Data, Change Layout, Run Report, Manage File

Class Name: Freshman, Junior, Senior

College Name : Arts & Sciences

Class Name	Count
Freshman	42
Junior	26
Senior	22
Arts & Sciences	90

College Name : Parks College

Class Name	Count
Freshman	37
Junior	17
Senior	5
Parks College	59

College Name : John Cook School of Busin

Class Name	Count
Junior	15
Freshman	12
Senior	5
John Cook School of Busin	32

In addition, custom calculations, percentages, formats and rankings can be added to the report.

Query Studio - Microsoft Internet Explorer

Address: http://localhost/crn/cgi-bin/cognos.cgi?b_action=xts.run&m=qs.qs.xts&method=newQuery&obj=%2fcontent%2fpackage%5b%40name%3d%27Higher+Education%27%5d

Query Studio - New

Menu: Insert Data, Edit Data, Change Layout, Run Report, Manage File

Class Name: Freshman, Junior, Senior

College Name : Arts & Sciences

Class Name	Count	% of total (Count)	Rank (% of total (Count))
Freshman	42	46.67%	9
Junior	26	28.89%	12
Senior	22	24.44%	16
Arts & Sciences	90	100.00%	

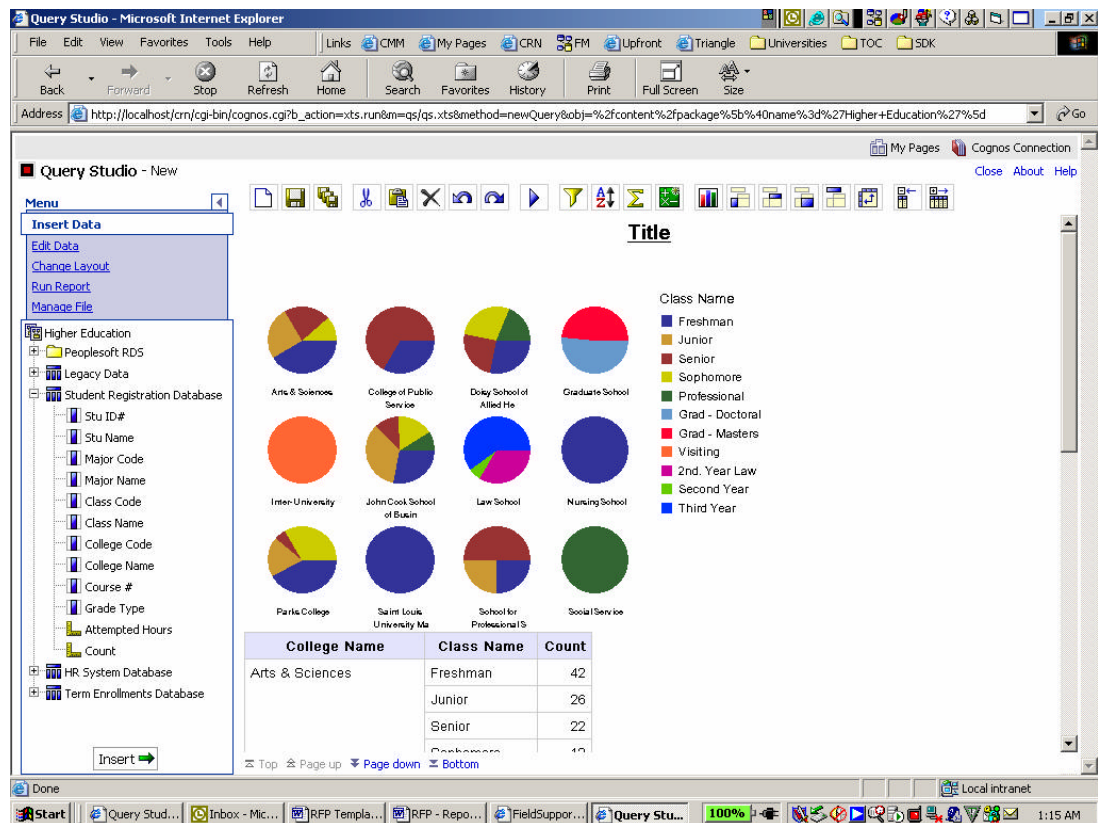
College Name : Parks College

Class Name	Count	% of total (Count)	Rank (% of total (Count))
Freshman	37	62.71%	4
Junior	17	28.81%	13
Senior	5	8.47%	18
Parks College	59	100.00%	

College Name : John Cook School of Busin

Class Name	Count	% of total (Count)	Rank (% of total (Count))
Junior	15	46.88%	8
Freshman	12	37.50%	10
Senior	5	15.62%	17
John Cook School of Busin	32	100.00%	

Data can also be viewed at anytime in a number of graphical formats.



These reports give the Power User access to the data they need, when they need it. These reports can also be saved and taken into the web-based professional authoring tool by the report building if they need to be enhanced further then the capabilities of the power user allow.

Furthermore, this Ad-Hoc functionality may deliver SQL-based reporting, off commercial SQL databases and data warehouses, or it may deliver MOLAP reporting, off of pre-aggregated, pre-cached, highly compressed, highly optimized cubes of data that do not use SQL. Depending on the requirements with respect to response time and data currency, both architectures may be appropriate in turn.

Note that all of the above functionality is 100% web-based, with no applets, downloads, client software or plugins. Contrast this with other vendors who claim a “Web-based” Ad-Hoc tool, but really require applets, downloads, and client software or plugins to deliver functionality of comparable richness.

4.2.20. GUI Based Query Development: The solution must provide a graphical user interface (GUI) for query development by power users. This GUI will allow a user to build a database query without requiring the power user to provide SQL, database field names, or data sources. The power user will be able create and execute queries via either a drag-and-drop, or a pick-and-click interface.

As stated in 4.2.19, Cognos provides an GUI-based ad-hoc query development tool to enable end users of all sorts (including power users) to build database queries without requiring them to provide SQL, database field names or data sources.

4.2.21. GUI-based Report Design and Layout: The solution must provide a GUI for end users to specify report layout and formatting options. End users will be able to add, move, and delete columns, specify row sorts, specify row groupings, and change other layout options via a drag-and-drop, or a pick-and-click interface.

Query Studio is the reporting tool for end users to create simple queries and reports in Cognos 8, the Web-based reporting solution. In Query Studio, you can:

§ view data

Connect to a data source to view data in a tree hierarchy. Expand the query subjects to see query item details. Add, move and delete columns within a report.

§ create reports

Use the data source to create reports, which you can save and reuse. You can also use an existing report to create a new report.

§ change the appearance of reports

Improve the layout of your report. For example, you can create a chart, add a title, specify text and border styles, or reorder columns for easy comparison.

§ work with data in a report

Use filters, summaries, and calculations to compare and analyze data. Drill up and drill down to view related information.

County	Program Name	Amount Billed	Amount Approved
Berks	HEALTHCARE BENEFITS PACKAGE 2	\$1,953	\$0
	HEALTHCARE BENEFITS PACKAGE 3	\$154	\$0
	\$2,227	\$0	
Blair	HEALTHCARE BENEFITS PACKAGE 1	\$4,150	\$0
	HEALTHCARE BENEFITS PACKAGE 2	\$3,722	\$0
	HEALTHCARE BENEFITS PACKAGE 3	\$90	\$0
Blair	\$7,962	\$0	
Bradford	HEALTHCARE BENEFITS PACKAGE 1	\$32,135	\$0
	HEALTHCARE BENEFITS PACKAGE 2	\$34,483	\$0
	HEALTHCARE BENEFITS PACKAGE 3	\$4,230	\$0
Bradford	\$70,848	\$0	
Bucks	HEALTHCARE BENEFITS PACKAGE 1	\$4,902	\$0
	HEALTHCARE BENEFITS PACKAGE 2	\$5,897	\$0
	HEALTHCARE BENEFITS PACKAGE 3	\$0	\$0
Bucks	\$10,799	\$0	
Butler	HEALTHCARE BENEFITS PACKAGE 1	\$1,196	\$0
	HEALTHCARE BENEFITS PACKAGE 2	\$423	\$0
	HEALTHCARE BENEFITS PACKAGE 3	\$0	\$0
Butler	\$1,619	\$0	
Cambria	HEALTHCARE BENEFITS PACKAGE 1	\$150,945	\$0
	HEALTHCARE BENEFITS PACKAGE 2	\$9,692	\$0
	HEALTHCARE BENEFITS PACKAGE 3	\$1,946	\$0

4.2.22. GUI Capabilities—Power User Interface: The solution must provide a Graphical User Interface (GUI) for report layout/design for use by a power user. The GUI must allow a power user to specify the format of reports and report elements, including: the segmentation of reports into header, body, and footer; grouping; filtering/parameterization; sorting; graphing/charting; mapping; and, the selection of data elements from supported data sources.

Report Studio is the professional report authoring tool for Cognos 8, providing a GUI-based report development environment. Use it to author more complex reports. Report Studio offers greater flexibility in calculating and formatting results. Report authors can open Query Studio or Analysis Studio reports to create more advanced reports.

Complete reporting coverage, including business dashboards.

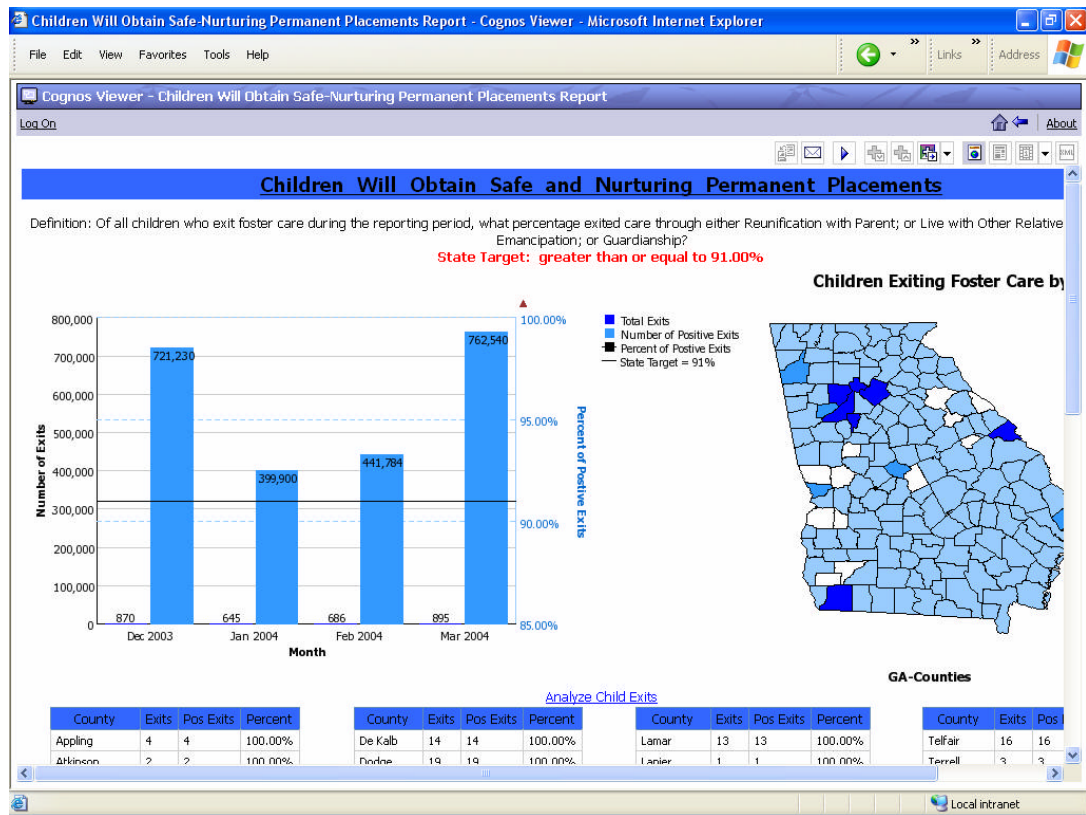
Burst personalized reports to multiple locations and in multiple formats.

Multiple export formats: Excel, PDF, XML, HTML, and CSV. Flexible distribution methods: centralized access, email, application integration, MS Office. A single architecture for viewing, querying, analyzing, and authoring for collaborative contributions to any report including dashboards.

Advanced, self-service authoring capabilities:

- § One authoring environment for creating all report types, including dashboards.
- § Federated queries -- one query drawing on multi-vendor data sources -- even within a single reporting object.
- § Adaptive layout adjusts automatically when objects are added, moved, or removed.
- § Embed live applications, Web sites, and non-BI content within a report.
- § Drag-and-drop authoring incorporates data, text, charts, graphs, and images.
- § Edit reports with prompts and toolbar commands.
- § Interactive visualizations and charting abilities.
- § Work with data using familiar business terms.
- § Use a variety of charts: cross tabs, bar/3D bar, pie/doughnut, line, gauge, funnel, scatter, dot density, waterfall, and more.
- § Create complex, multi-page layouts using different data sources without programming or workarounds.
- § Conditional suppression and automatic calculations.





4.2.23. GUI Capability - Add data filters to reports: The solution must allow the specification of data filters via a GUI.

Within Cognos 8, you can add a filter expression to focus a report and minimize processing time by excluding unwanted data. For example, you can filter data to show customers who placed purchase orders valued at over one thousand dollars during the past year. When you run the report, you see only the filtered data. Filters are specified within the associated studio (i.e., Report Studio, Query Studio, and Analysis Studio) through a GUI.

If an expression is used in multiple reports, or by different report authors, you can have the metadata modeler create the expression as a standalone object in the metadata model and include it in the relevant package (metadata repository).

If you are working with a dimensional data source, you can also define slicers. Use slicers to create dimensional filters that reduce the data included in measure rollups. For example, a slicer is a filter that is applied to the cells but not the rows or columns in a crosstab.

A slicer member set is an expression that returns a set of members from the same dimension. You can create multiple slicer member sets if you want to filter across two or more dimensions. You cannot create multiple slicer member sets against the same dimension.

4.2.24. GUI Capability—Specify Sort Criteria: The solution must provide the ability to specify sort criteria via a GUI.

With Report Studio, you can organize data values in a report by specifying a sort order. Data can be organized in ascending or descending order based on the values in any data item.

When you specify a sort order for more than one column, the columns are sorted in the order that they were inserted in the report. For example, you add columns A, B, and C to a report and specify a sort order for each. When you run the report, column A is sorted first, followed by B and then C. You can change the order in which the columns are sorted.

You can perform advanced sorting in a list or crosstab. For example, in a list, you can sort columns within groups and change the sort order of columns. In a crosstab, you can sort a row or column by another item, such as Order year by Revenue.

Analysis Studio, by default, retrieves data in the order defined in the data source. You can sort data to quickly view the most important data.

You can list items in ascending or descending order based on a value, such as revenue a label, such as name. Whether you select a set or an individual row or column, items are sorted based on the default measure and the summary values of the opposite axis.

In nested cross tabs, items are sorted based on the values of the innermost nested row or column of the opposite axis. For example, a crosstab contains Years in the columns and Retailers nested within Products in the rows. Select 2005, sort in descending order, and you see Retailers listed from the largest value to the smallest value for each product.

Sorted items are automatically resorted when you perform a drill or replace operation on the opposite axis, if Based on row or Based on column in the Sort dialog box is set to the default.

You can use the custom sort options to override the default sorting behavior. For example, you can sort items based on a measure other than the default measure, or based on a row or column other than the summary values of the opposite axis. The custom sort options also lets you sort by attributes.

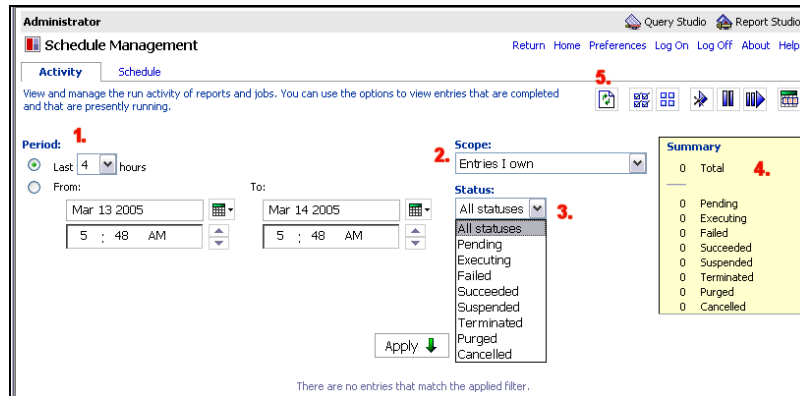
By default, items in nested sets are sorted based on the values of the innermost nested row or column. You can use custom sorting to sort nested or stacked sets differently than this default.

4.2.25. Individual IDs: The solution must support the use of unique user IDs.

By default, Cognos uses LDAP to manage user access, user groups and user roles. Active Directory Services (ADS), Database security, Operating System (OS) security can also be used for user authentication as well. In fact, any combination of ADS, LDAP, OS, or database/RDBMS security can be used for authentication to support a single sign-on architecture with unique user IDs. For reports, administrators who has read, write and delete access to the report based on a group, user or role. The administrator can set this security in the web interface. Administrators can also use the same groups, user or roles to specify column, row, or cell level security for data. The administrator can set this data in the metadata.

4.2.26. Monitor and Interrupt Job Execution: The solution must provide functionality for the system administrator to monitor and stop reports or sessions causing performance degradation. When queries are stopped via the tool, all related processes must be terminated in a manner that does not continue to allocate resources to them. Termination of a job should cleanly release system resources such as system memory and temporary disk space.

Cognos also provides rich functionality for monitoring the performance of the Performance Management system. All functionality is browser-based, as shown here:



Using the numbers above, note the ability to:

1. Filter to specific time periods
2. Scope the activity to all users, or specific users
3. Scope the status to just those reports that failed, succeeded, etc.
4. View summary execution information on the right
5. Suspend, stop or restart any scheduled job.

Moreover, users may monitor the health of the system by using the server administration console as shown below. This console shows the status of every Cognos sub-process, including its latency, requests per second, requests per minute, status, and update interval. Note that this interface is also 100% web-based:

Name	Service	Status	Processes	Latency	Seconds per request	Requests per minute	Update interval	Actions
---> http://wburtaylor2xp:9300 > BatchReportService	Batch report	OK	0/2	0/ --	0	0	--	More...
---> http://wburtaylor2xp:9300 > ContentManagerService	Content Manager	OK	-- / --	-- / --	30.073	2	--	More...
---> http://wburtaylor2xp:9300 > Job and Scheduling Monitoring Service	Job and schedule monitoring	OK	-- / --	-- / --	0	0	--	More...
---> http://wburtaylor2xp:9300 > LogService	Log	OK	-- / --	-- / --	0	0	--	More...
---> http://wburtaylor2xp:9300 > PresentationService	Presentation	OK	-- / --	-- / --	0	0	--	More...
---> http://wburtaylor2xp:9300 > ReportService	Report	OK	1/2	0/30	0	0	--	More...

4.2.27. Multi-pass Query Support: The solution must be able to retrieve multiple sets of data from one or more data sources, and allow a power user to produce calculations, grids, or graphical displays that leverage data from the different data sources. The solution will allow the power user to specify the elements from each result set that are related.

You can perform multi-pass queries in Cognos using a base query, and then creating a reference query to the original query. You can any number of levels:

Query 1

Query 1a

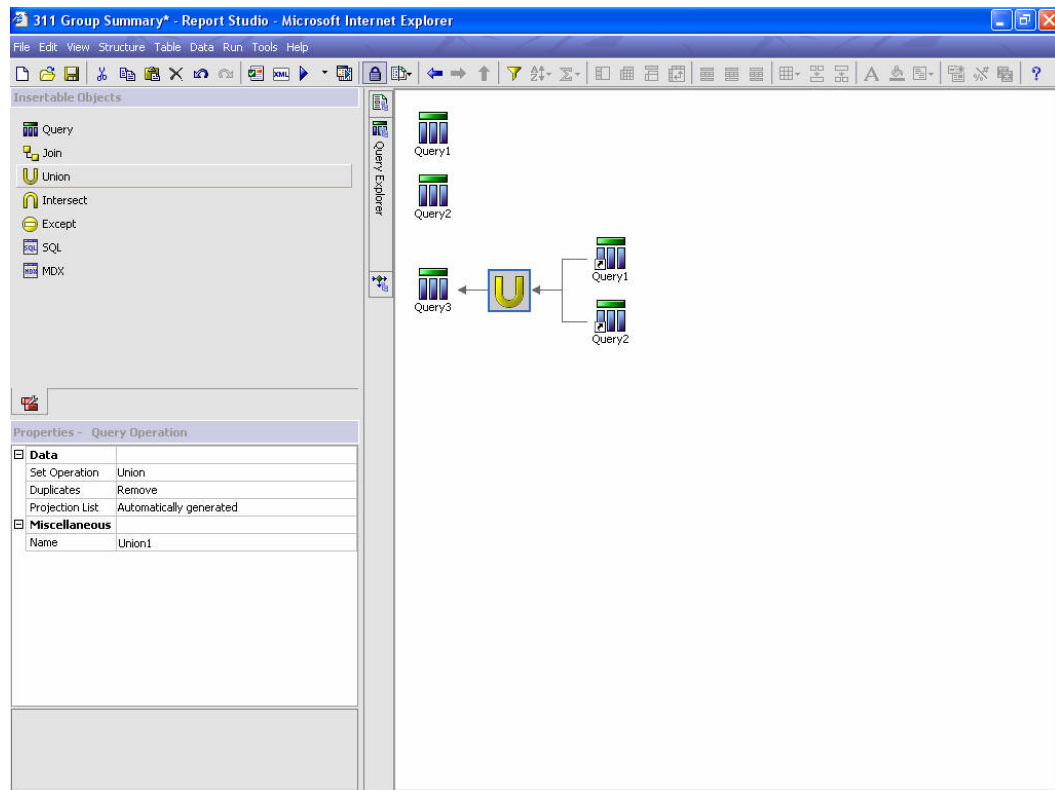
Query 1b

Query 2a

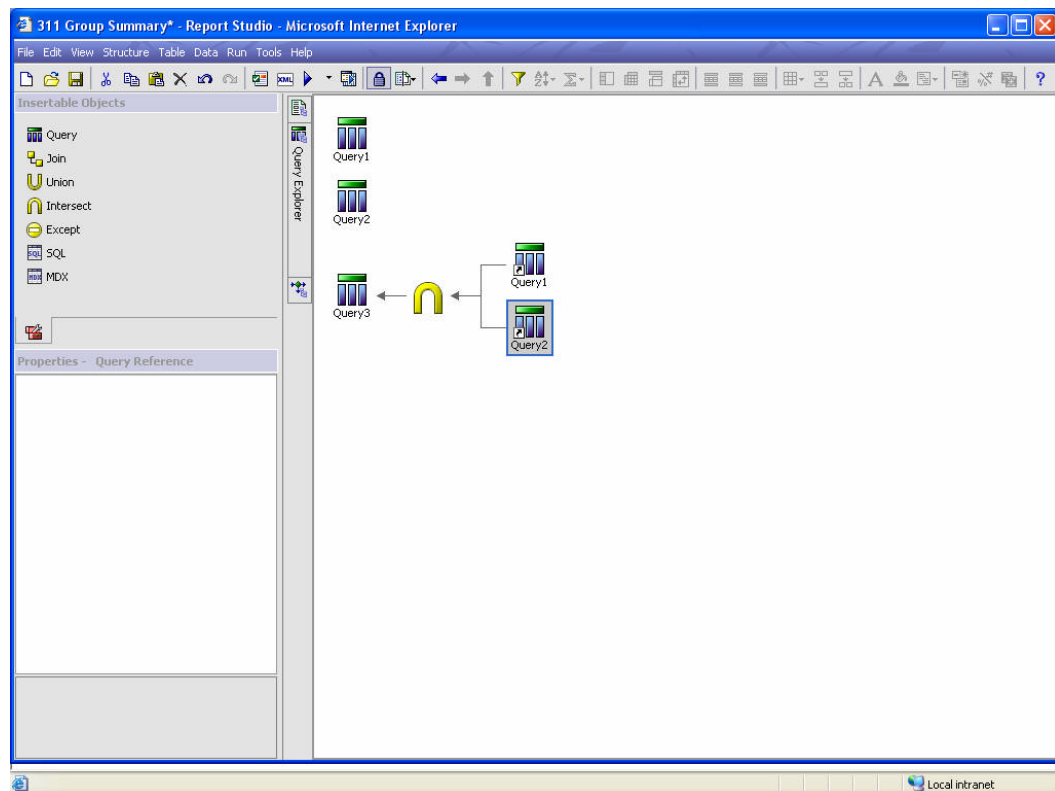
Query 2b

Each level in the hierarchy can refer to its parent query and contain its own variables, filters and formulas.

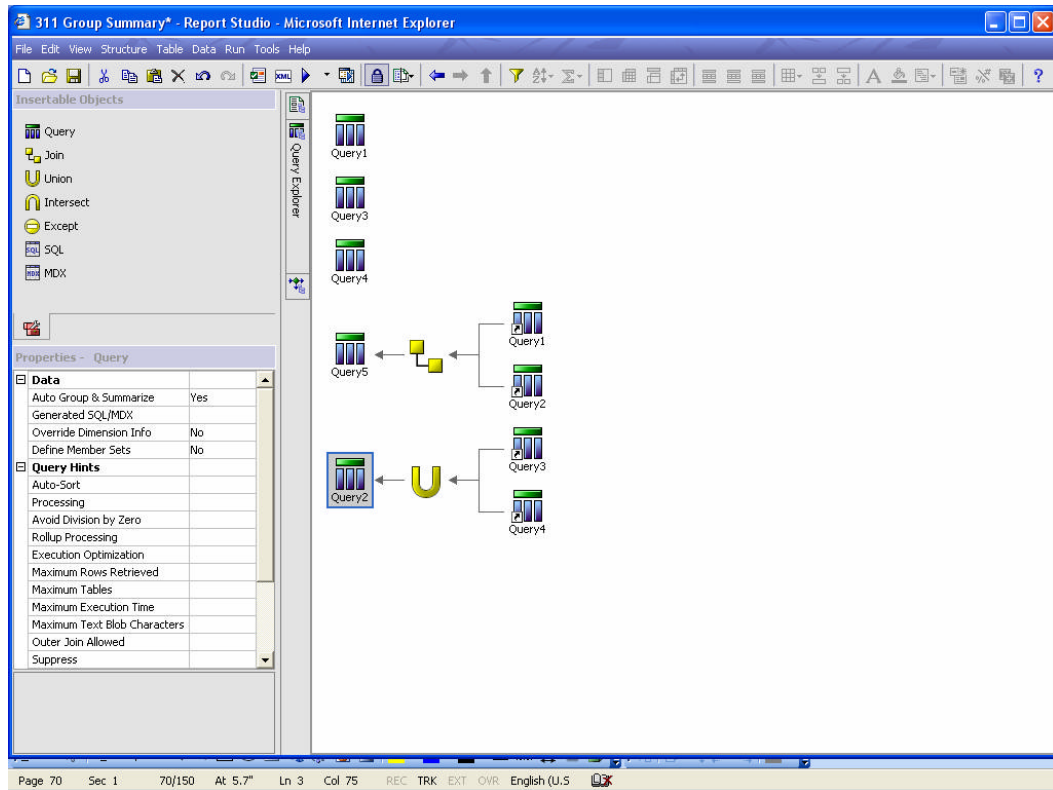
The following diagram shows how 2 queries (Query 1 and Query 2) can be unioned to provide results to the base query (Query 3)

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The following diagram shows the same queries, however, in an intersection:

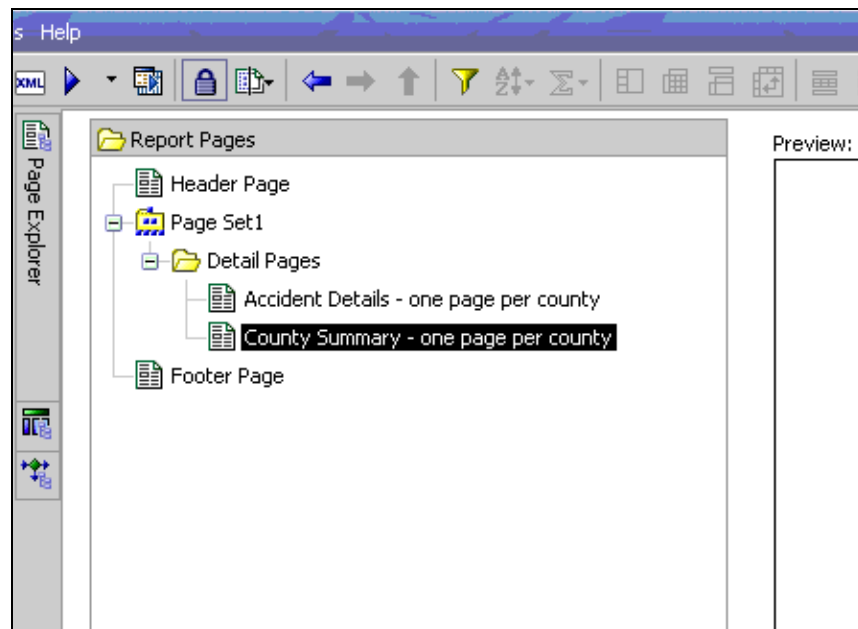


And in the following diagram, Query 2 is union of Query 3 and Query 4. Query 5 is joining the results of Query 1 with the results of the union from Query 2.



4.2.28. Pagination Control: The solution must provide the ability to specify pagination rules for printed reports. As an example, users may wish to prevent groups of data from breaking across pages. Create page sets to associate pages with a query structure to force page breaks. For example, a query contains the data item Product line, which is grouped. Creating a page set that is associated with this query adds page breaks for each product line.

Cognos supports this requirement. Users may create page sets to associate pages with a query structure to force page breaks. For example, a query contains the data item Product line, which is grouped. Creating a page set that is associated with this query adds page breaks for each product line. In this example, the report specifies page breaks by county. Furthermore, it contains a header and footer page; also a County Summary page that repeats once per county between the main County page and the next county's pages. This specification is set up in the web browser.



If you have more than one data container in a report, such as a list and a cross-tab, you can control how the report is rendered in HTML and PDF by setting the Rows per Page property for each container. For example, you have two lists, List1 and List2. You set the Rows Per Page property to 5 for List1. When you run the report in HTML, the first page contains the first 5 rows from List1 followed by the first 15 rows of List2.

4.2.29. Prompt Formats: The solution must allow report developers the ability to choose parameter type options through a point-and-click interface. The solution shall support the following parameter types: checkboxes, drop-down lists, free text fields, radio button groups, and list boxes.

Reports can be built with prompts providing parameter based selection in a variety of ways:

- § Prompt buttons
- § Text Box prompts
- § Value Prompts
- § Select & Search prompts
- § Date Prompts
- § Time Prompts
- § Date & Time prompts
- § Interval prompts
- § Generated prompts
- § Hyperlink buttons

Many of these prompts can be rendered in a variety of different methods. Properties can be set for each of the prompts and buttons to achieve an endless amount of variety based on the needs of the report author. These can range from single or multi-select, drop down, radio buttons, checkboxes, etc. Additionally, prompts that are created can be required, optional, user values, expressions, query items, etc. Prompts can also be created such that the results of a selection in one prompt can cascade to another prompt to only provide related values.

4.2.30. Report Distribution via Single Reference/file: The solution must provide the ability to create a single file or link that contains all report components, including report parameters for a single file, in a format that can be transmitted electronically and migrated from one server to another. This will allow one office to create a report and easily share it with other offices. This would also allow the migration of reports from development environments/servers to test or production environments.

Report distribution can be handled through a single file, called a deployment. Deployment involves moving applications from one installation to another. In Cognos 8, you deploy packages, top-level folders, or the entire content store from a source environment to a target environment.

Typically, deployment transfers entries, such as folders, reports, and report views, from a development environment to a test environment and then to a production environment.

You can also deploy between operating systems. It is important to plan your deployment to ensure that you deploy the correct information and that you do not disturb the target environment. It is also important to consider security in the source and target environments.

You can upgrade entries from previous releases, by running the deployment import wizard. You can use an operating system or scripting mechanism to perform deployment from a command line. You can use the Cognos 8 software development kit (SDK) to automate the deployment process to

- § create, update, and delete a deployment specification
- § load a deployment specification from a deployment archive
- § submit deployment export and import requests
- § access deployment history

4.2.31. Report Grouping and Organization: The solution must provide an ability to save reports to a secure hierarchy of folders. Access to folders will be restricted based on role and permissions. Users with proper access rights shall be able to create subfolders within folders to which they have access.

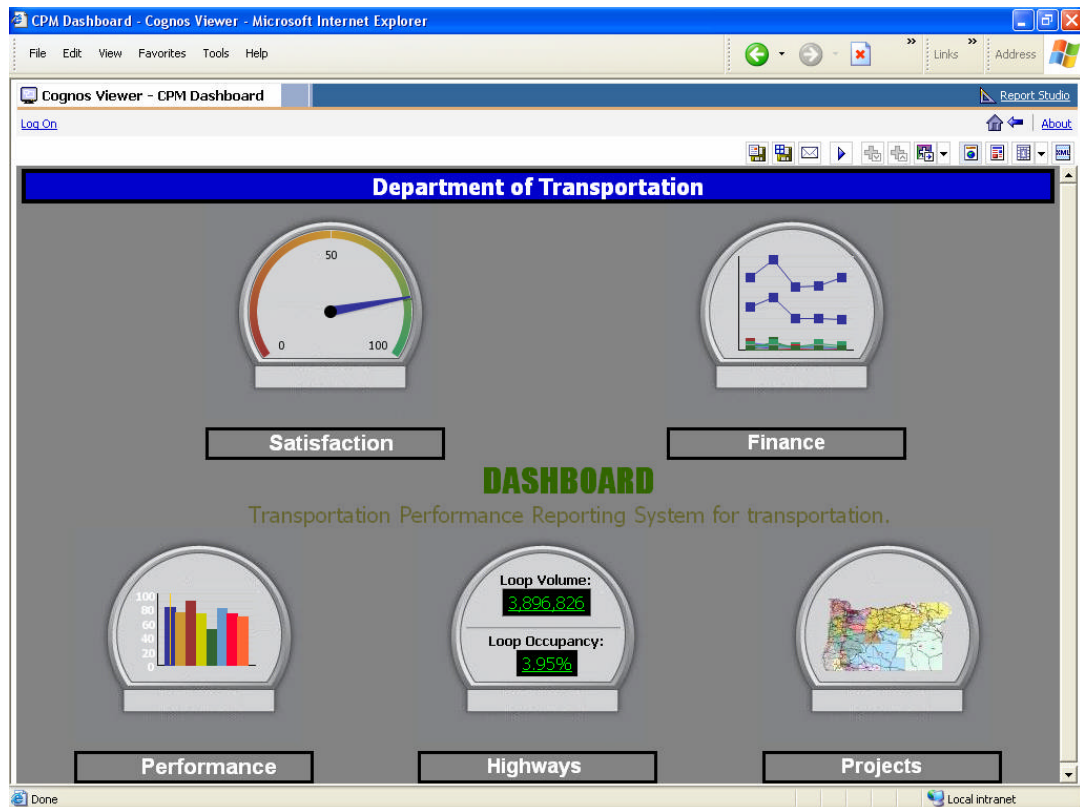
All content is available in an easy to use web interface. Content is displayed hierarchically in a series of folders, simply navigate through the folders to access content or use the search tool to find content instantly. Administrators can grant read, write and delete access to users, groups and roles for any report or folder of reports.

4.2.32. Reports Must Support Multiple Output Formats: The solution must support displaying multiple graphs/charts and data tables on the same page of a report or dashboard. It must be possible to simultaneously represent the same data/result set using different output types. For example, the same data/result set could be represented in a line graph and a tabular table on the same page of a report. This must be supported without the need to re-execute the query for each display type. It must be also be possible to display report components (graphs, maps, tables, etc.) from separate queries on the same page of a report. For multi-page reports, it must be possible to repeat graphic displays as part of the page header in a manner that reflects the summary values of the entire data set while the individual page provides detail at a lower level. It must also be possible to repeat graphic elements as part of group headers in a manner that reflects the summary (or detail) values for a particular subset of the report's data.

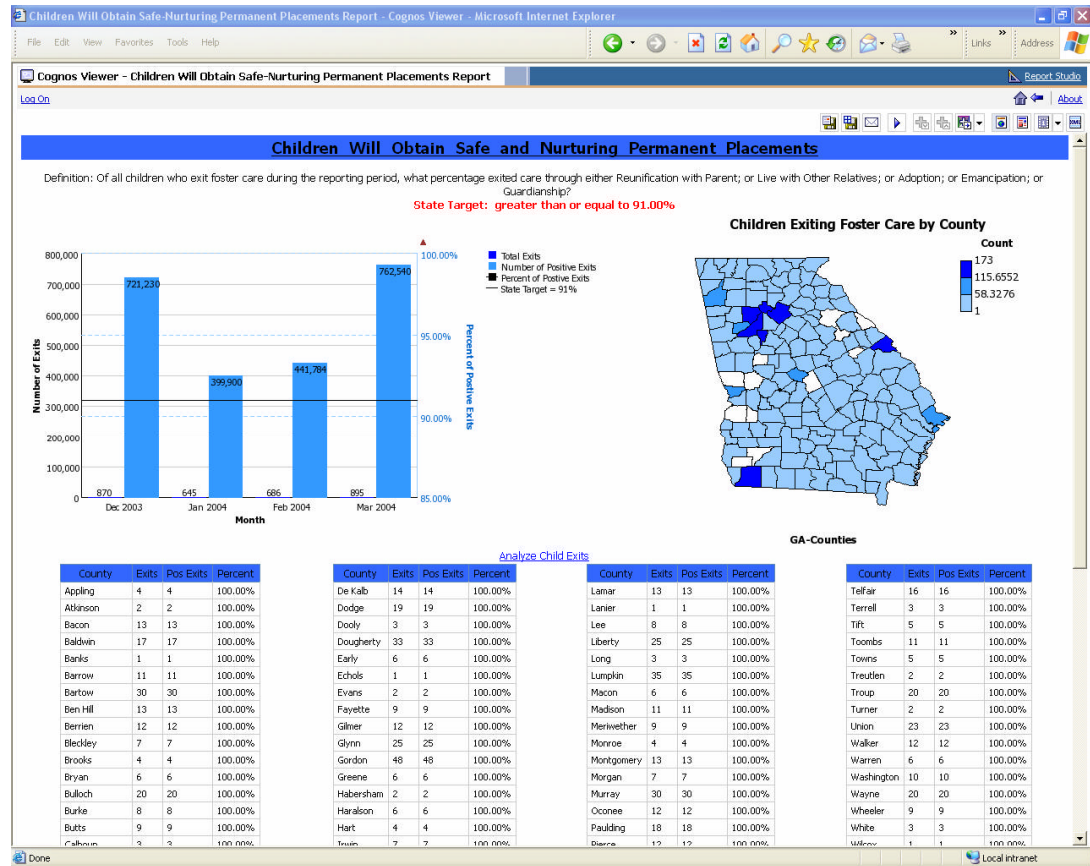
Cognos 8 BI is the only solution that provides the complete range of BI capabilities in a single product, on a single architecture. It is the only solution to deliver a simplified, zero-footprint interface for all users, authors, and administrators. Cognos 8 provides:

- § One authoring environment for creating all report types, including dashboards.
- § Federated queries -- one query drawing on multi-vendor data sources -- even within a single reporting object.
- § Adaptive layout adjusts automatically when objects are added, moved, or removed.
- § Embed live applications, Web sites, and non-BI content within a report.
- § Drag-and-drop authoring incorporates data, text, charts, graphs, and images.
- § Edit reports with prompts and toolbar commands.
- § Interactive visualizations and charting abilities.
- § Work with data using familiar business terms.
- § Use a variety of charts: cross tabs, bar/3D bar, pie/doughnut, line, gauge, funnel, scatter, dot density, waterfall, and more.
- § Create complex, multi-page layouts using different data sources without programming or workarounds.
- § Conditional suppression and automatic calculations.

Below is an example of multiple graphs/charts and data tables that can all be displayed on the same page of a report or dashboard.

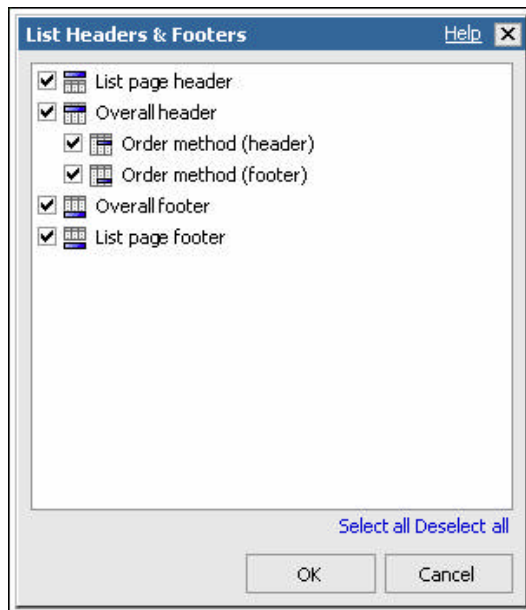


Below is another sample of displaying the same data/result set in a bar graph (it could be a line graph, or any other relevant graph type), tabular table and conditionally formatted map. The data is all derived from the same query, executed once to generate the report.

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Multi-page reports can be developed and executed to repeat graphic displays as part of the page header, providing summary values for the entire data set in the page header, while providing detail on individual pages.

It is also possible to repeat graphic elements as part of group headers in a manner that reflects the summary (or detail) values for a particular subset of the report's data. You can set these headers and/or footers first by selecting those options in the report definition (see below):



And that should generate the following report specification for a list:

Order method	Order year	Quantity
List Page Header		
Summary (List Header)		
<Order method>		
<Order method>	<Order year>	<Quantity>
<Order method>		
<Order method>		
<Order method>	<Order year>	<Quantity>
<Order method>		
Summary		<Quantity>
List Page Footer		

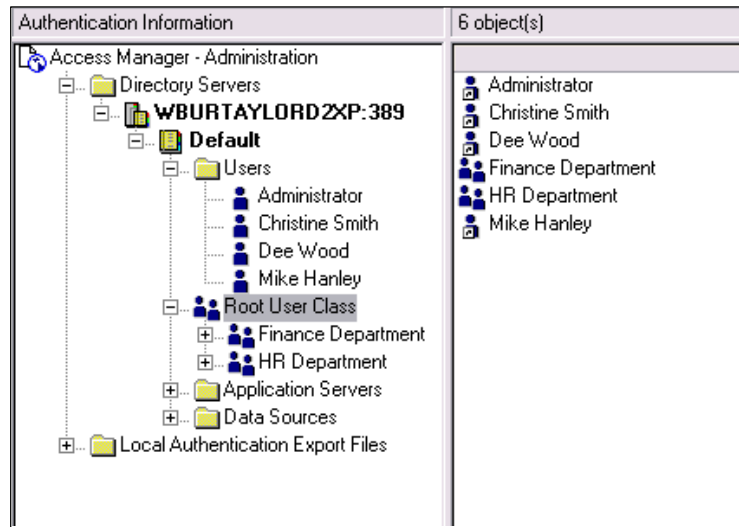
And here is a sample output of this type of definition:

Order methodE-mail	Order year2004	Quantity2,215,354
List Page HeaderE-mail	2004	86,884
Summary (List Header)E-mail	2004	2,215,354
E-mail	2004	348,500
E-mail	2004	86,884
	2005	122,530
	2006	139,086
E-mail	2006	348,500
Fax	2004	115,844
Fax	2004	34,462
	2005	41,558
List Page FooterFax	2005	41,558

4.2.33. Role Based Authorization: The solution must support the assignment of access rights to specific reports or functionality to users based upon roles/groups they have been assigned to. It must be possible to override the role based rights for individual users.

The Access Manager console may be used to configure users, groups, roles, database signons, user information, single signon, etc.:

In many customer installations, users are added through the security architecture that is in place. It is important to note that Cognos' security architecture does not require replication of any users, groups or roles already in existence at the State of Utah. Rather than requiring a copy of that information to secure the Cognos application, Cognos' security architecture will leverage those constructs as they are and where they reside, in order to minimize administrative costs and maximize existing infrastructure.



Authorization may then be set on virtually any feature in Cognos 8 based on the username, group or role of the user making the request. Authorization may include, but is not limited to:

- Read/write/traverse/modify/change policy on a:
 - Report
 - Folder
 - Schedule
 - Database connection
 - Other object (job, deployment, shortcut, etc.)
- Use or not use specific features:
 - Ad-Hoc
 - Managed reporting
 - Analysis
 - Metrics
 - Metadata
 - Handwritten SQL
 - System administration
 - Cross-product joins
 - Many others...

4.2.34. Shared and Reusable Report Components: The solution must maintain a library of report objects that can be shared among users. These objects must include report templates (with defined formatting and prompting), and defined filters allowing for collaboration among groups. Users must be able to retrieve these objects, edit them, and apply them to reports they create or edit.

Any report can be saved as a template that can include standard headers, footers, images, fonts, sizes, heights, widths, and a variety of other report objects. When a user creates a blank report, they can choose the pre-designed template available in a dialogue box to ensure all reports follow the same format. These report templates can be maintained in a library within the Cognos Connection portal, or any third party portal, and shared amongst users and developers.

4.2.35. Sorting—Basic: The solution must allow users to sort and resort result sets in ascending or descending order through the product GUI.

With Report Studio, you can organize data values in a report by specifying a sort order. Data can be organized in ascending or descending order based on the values in any data item.

When you specify a sort order for more than one column, the columns are sorted in the order that they were inserted in the report. For example, you add columns A, B, and C to a report and specify a sort order for each. When you run the report, column A is sorted first, followed by B and then C. You can change the order in which the columns are sorted.

4.2.36. Sorting—Custom: The solution must allow a developer to create/identify at least one custom sort order column for each data element that can be used to override default ascending or descending sorts determined by alphabetic or numeric sorting of an element. It must be possible to use this custom sort order for use in both data tables and graphs. It must be possible to use this sort order without needing to display it on screens or printed reports.

You can perform advanced sorting in a list or crosstab. For example, in a list, you can sort columns within groups and change the sort order of columns. In a crosstab, you can sort a row or column by another item, such as Order year by Revenue. You can use the custom sort options to override the default sorting behavior. For example, you can sort items based on a measure other than the default measure, or based on a row or column other than the summary values of the opposite axis. The custom sort options also lets you sort by attributes.

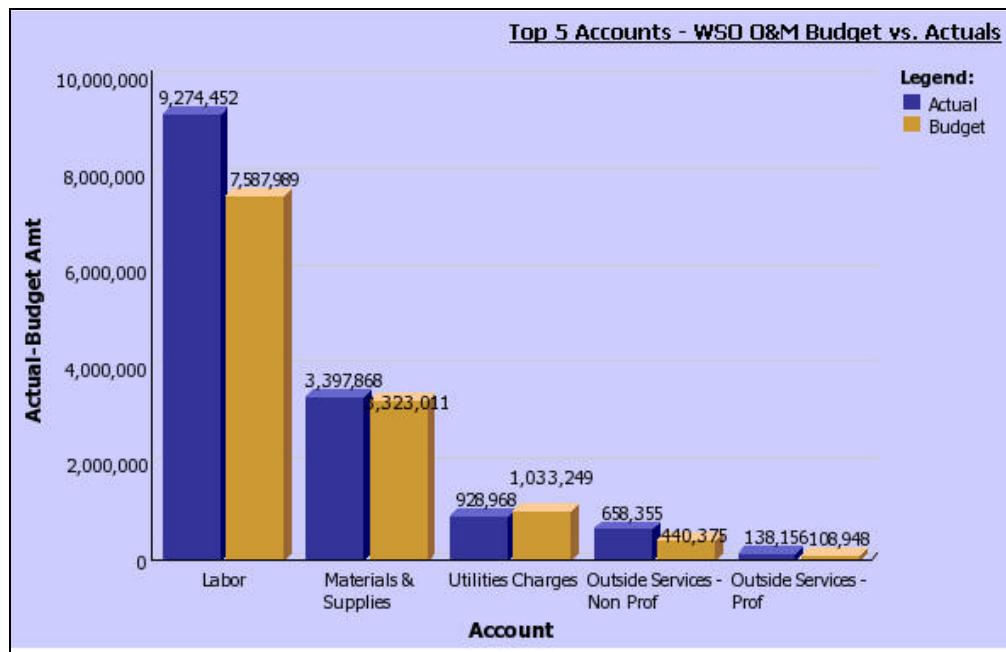
4.2 Report Writer Requirements

Desirable Capabilities

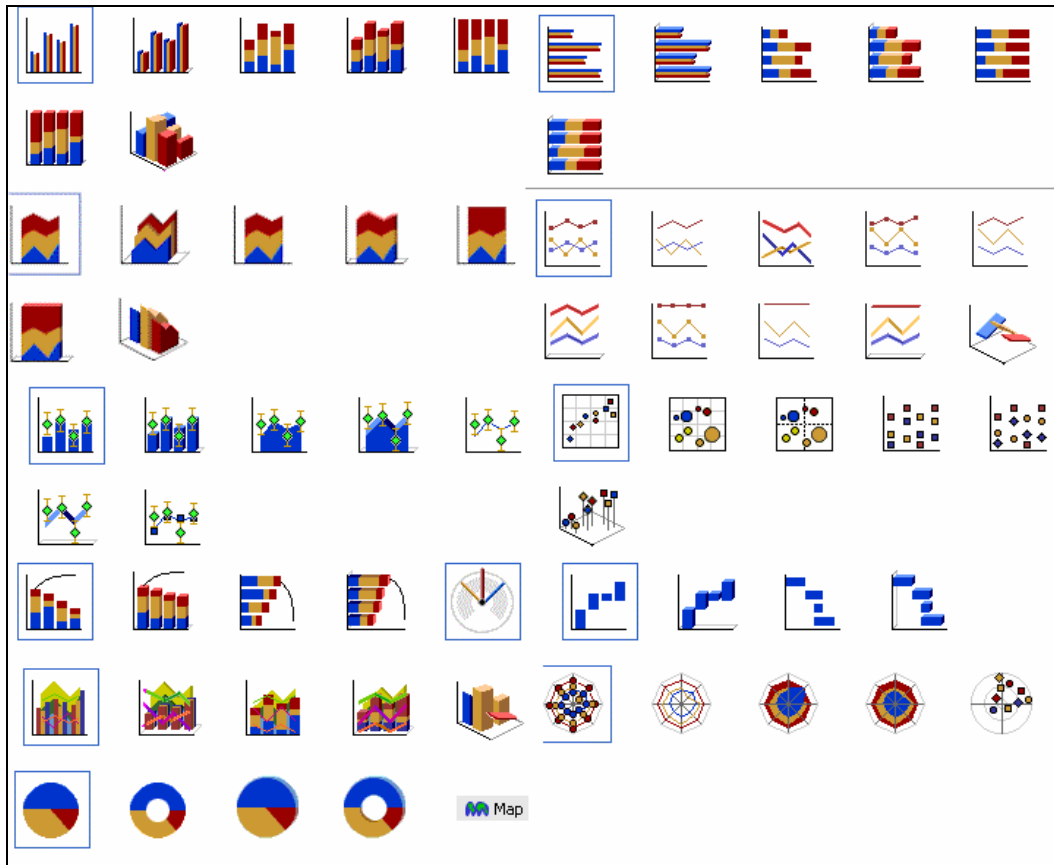
4.2.37. Graph and Map Legends: The solution should support the display of numeric measures (counts, sums, averages, etc.) associated with each graph or map segment as a format option.

Chart types available for report authoring which include: column, bar, progressive, pareto, line, pie, area, combination, gauge, metric range, scatter, radar and Map. Many of the chart types support the charting of 2 or more measures. Users can choose to turn on or off graph legend display.

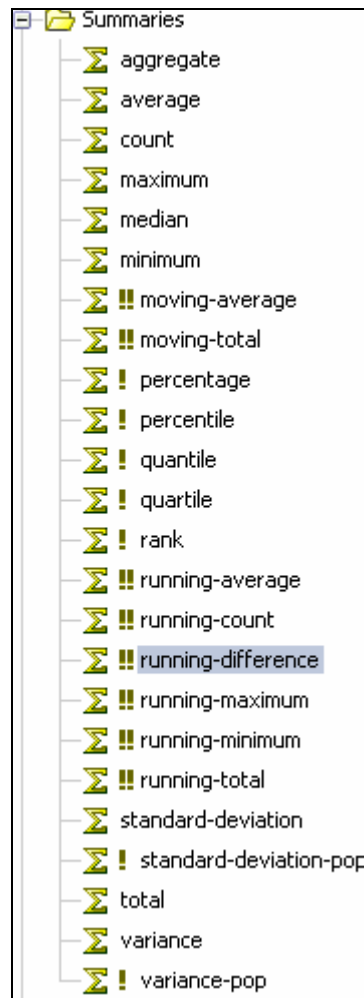
The measures displayed on these graphs support aggregation functions like Sum, Count, Count Unique, Average, Min, Max, Last, First etc.



Below is a screenshot illustrating the various chart types.

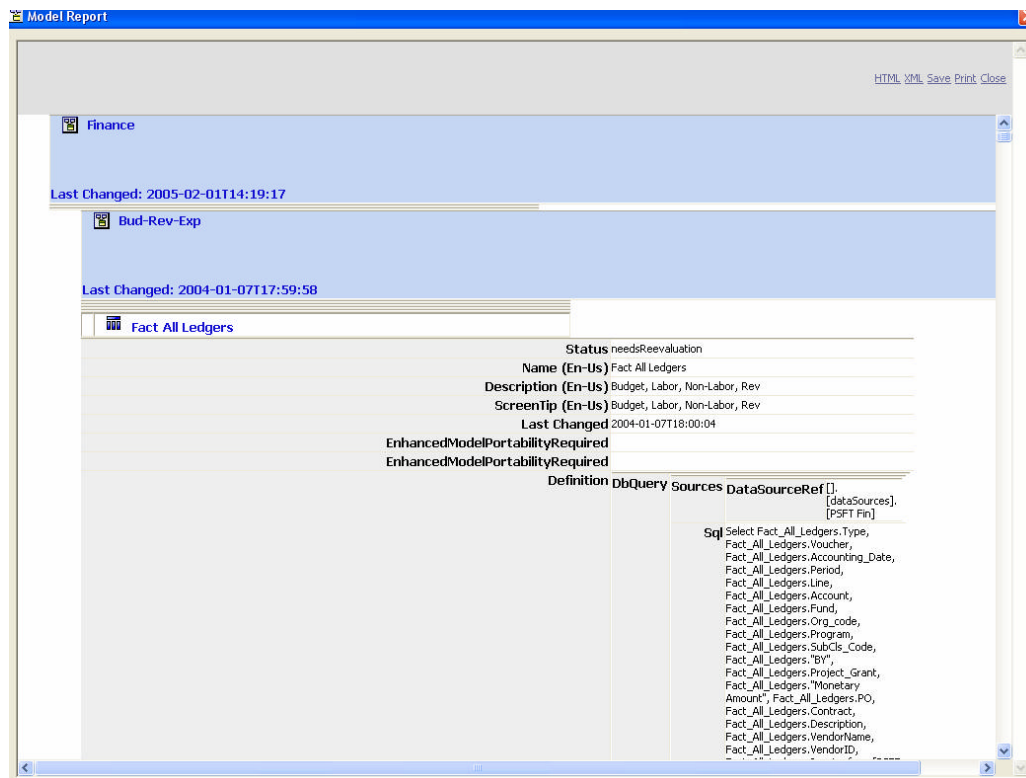


The measures on this graph supports aggregation functions like Sum, Count, Average, Min, Max, etc. Screenshot of built-in Aggregate functions below:



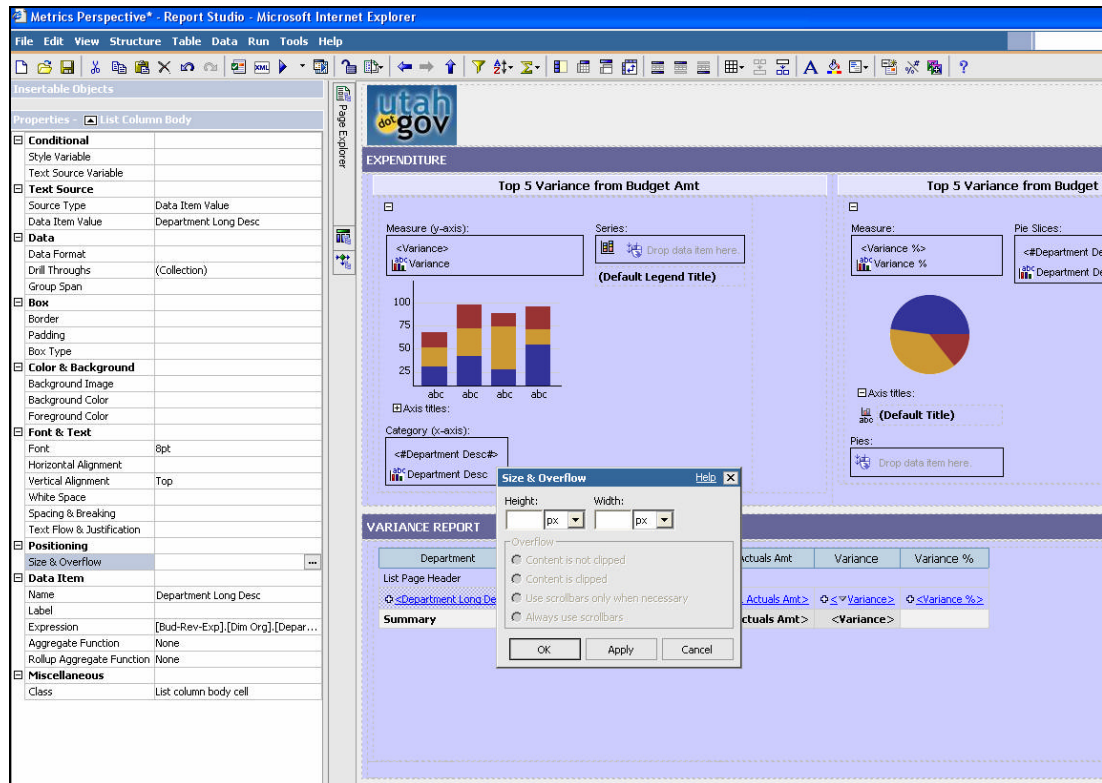
4.2.38. Loop Detection and Warning: The solution should be able to detect the presence of "loops" that exist in the table relationships that a system developer has defined in the solution's metadata. The solution should be able to report the specific relationships that create the loops.

Cognos has a centralized metadata layer, used across all interfaces, including OLAP, ad-hoc query, and professional reporting. Users can develop your joins and business definitions once, and deploy them across the entire breadth of the Cognos BI Suite. Cognos Metadata has a built-in mechanism to detect loop joins in the metadata. This modeling utility will pop up a warning/error window whenever the join specification is incorrect. Further, Cognos metadata provides graphical and text representation of the entire table joins in a model as shown in the below screenshots.



The Cognos solution does provide both report execution and pixel-perfect report creation (authoring) in a zero footprint, web browser based environment. Within this browser interface, users can change

format and size of report elements by choosing items from the *Properties* window (below screenshot – left frame). This property window allows users to change fonts, colors, specify height and width of a report element. Cognos allows users to change the size of report element by units of pixel, %, inches, cms, mm, picas and points.

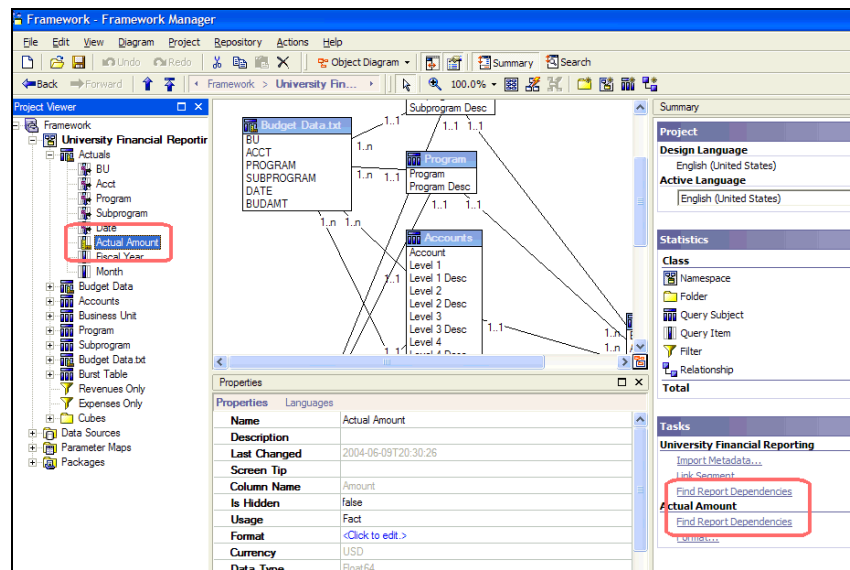


4.2.40. Impact Analysis: The solution should provide impact analysis reporting that identifies:

- 1) any reporting object that utilizes a given database table and/or field; and,
- 2) any report that utilizes a given report object.

Cognos solution supports this requirement.

Because of Cognos' unique web-based report development environment, all report definitions, even those under development by business end users, are centrally stored in the Cognos Content Store. This architecture allows Cognos administrators to perform just this type of change impact control analysis.



In this example, clicking on “Find Report Dependencies” presents the following analysis of all reports in the Content Store that reference the selected column (Actual Amount):

The screenshot shows the 'Analyze Publish Impact' dialog box. The title is 'Report Dependencies'. Below the title, it says 'A list of reports within "Public Folders" that reference the selected model items'. There is a 'Print' button. The main area is a table with columns: 'Name', 'Path', 'Usage', and 'Found in Expre'. The table lists several reports that reference the 'Actual Amount' column.

Name	Path	Usage	Found in Expre
Program Spending Trend	Public Folders > University Financial Reporting	Column	[University Finan
Spending for Selected University Division	Public Folders > University Financial Reporting	Column	[University Finan
1. Divisional Spending w/Drill	Public Folders > University Financial Reporting	expression	[University Finan
4. Multi-Database (other data)	Public Folders > Cal Poly Foundation	expression	[University Finan
ARS	Public Folders > University Financial Reporting > Reports Under Development	expression	[University Finan
Actual Spending Detail	Public Folders > University Financial Reporting	expression	[University Finan
Actual v Budget Mixed Chart	Public Folders > University Financial Reporting	expression	[University Finan
Actual v Budget Mixed Chart Alert	Public Folders > University Financial Reporting > Reports Under Development	expression	[University Finan
BAE Select by Org Node	Public Folders > CU	expression	[University Finan
Bursting	Public Folders > CU	expression	[University Finan
Cascading Prompts	Public Folders > CU	expression	[University Finan
Divisional Spending	Public Folders > University Financial Reporting	expression	[University Finan
Divisional Spending Detail	Public Folders > University Financial Reporting	expression	[University Finan
Drill Target	Public Folders > University Financial Reporting	expression	[University Finan
Dynamic Text Sizing (see also PP)	Public Folders > CU	expression	[University Finan
Excel	Public Folders > University Financial Reporting > Reports Under Development	expression	[University Finan

At the bottom of the dialog, there is a 'Close' button.

4.2.41. Invoke Report from Another Web Application: The solution should be able to support embedded reporting needs. Specifically, it should be possible to invoke API calls to the solution toolset from within another Web application. From these API calls it should be possible to:

- 1) start reporting tool;
- 2) validate user ID with transparent (non user prompted) login—unencrypted passwords cannot be passed between the originating application and the reporting solution;
- 3) invoke a specific predefined report with parameter pass thru; and,
- 4) prevent the users from invoking other reports during this session.

Any web-based application can interact with Cognos at the URL level, or at the richer SOAP API level, depending on the functionality needed.

The Cognos open architecture provides a platform-independent automation interface for working with Cognos services and components. These Cognos services and components issue calls and return replies in standard formats, including HTTP and SOAP via HTTP.

Virtually everything you can do with the product natively, you can also achieve programmatically using the Cognos open architecture:

- let other applications or Web portals interact directly with Cognos information content
- make your reports available in a web portal
- Starting report authoring tool
- create reports
- administer, schedule, and deploy reports and other objects
- administer Cognos groups and roles, and ReportNet access permissions
- authenticate users
- extract a series of user actions from the log action file for auditing
- modify a report
- modify the appearance of Cognos
- run, view, and edit reports through a hyperlink in an HTML page
- administer and implement security
- set up an unattended installation
- set up an unattended configuration
- retrieve the query items
- grant capabilities
- manipulate objects in the content store
- create custom report function libraries for report authors
- create your own custom messages and user interface strings, see the Cognos Localization Development Kit Installation and User Guide

The API is based on SOAP 1.1, and therefore may be accessed by a Java Toolkit, a COM Toolkit, or the .NET Framework. ReportNet ships with Java libraries and other sample code encapsulating the framework.

Validation of user ID with transparent login or Single Signon is accomplished by leveraging this process to ensure that Cognos gets what it needs to trust the identity of the user:

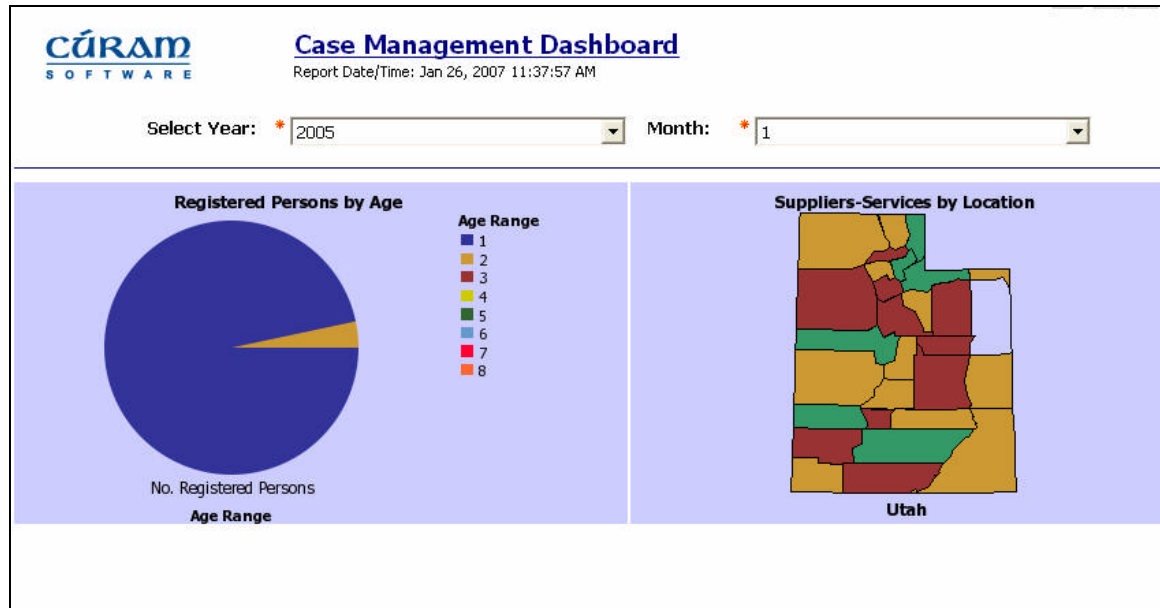
- For some security architectures (NTLM security, LDAP, Active Directory, Netegrity SiteMinder, SAP) this happens with only minimal configuration changes, through Integrated Windows security.

For other architectures, Cognos provides a set of dedicated security API's with which you can customize the authentication conversation between Cognos and any other authentication source, thereby enabling single-signon.

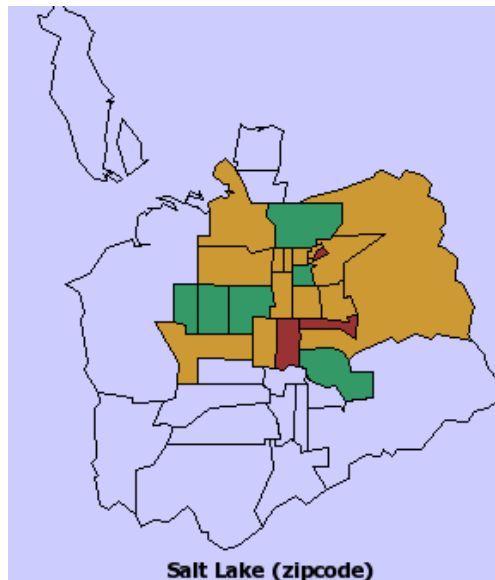
4.2.42. Map Linking: The solution should provide the ability to include a link from a map to another map or report data via the Web based GUI so that users can access additional details about the data displayed via the map. The solution should support links which correspond to each boundary defined within a map display. The system developer should be able to define the map levels that correspond to link actions. The system developer should be able to define the link target (report, graph, map, URL, etc.)



Cognos supports this requirement, Report author can choose a map and choose link targets to another map, report, graph, bookmark or a URL.



In the above Utah State map example, user can click on Salt Lake County to view Salt Lake Zip code - Suppliers map and other details.

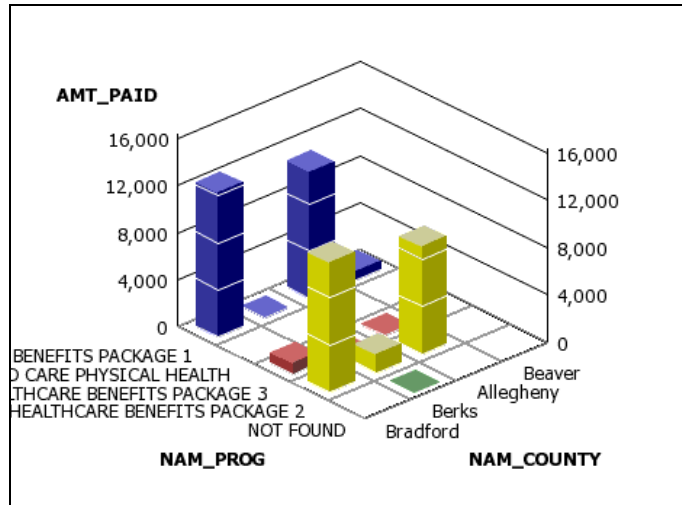


4.2.43. User ID Can Determine Data Source: The solution should be able to process queries against different database servers based upon the user ID authenticated. This should allow separate database servers to be deployed (with identical database structures) in different physical locations such that a user's query will be executed against the server that contains their region's data.

Cognos provides ability to dynamically attach to a database based on a User ID. In a live Cognos customer instance, an agency has 300+ identical Informix instances and needed to be able to attach to those dynamically with a single set of reports and only a single metadata model based.

4.2.44. 3D Graphing: The solution should support graphing in as many as three dimensions (X,Y,Z).

Cognos supports this requirement. Graph can display multiple measures in different chart types and dimensions within a single graph.



4.2.45. Blocking of Cartesian Products: The solution should be able to detect and block execution of queries that would produce Cartesian product results.

Cognos supports this requirement. Cognos can detect and block running reports/queries with Cartesian joins. This feature can be disabled or enabled for entire model or by a report/query.

Runtime Activities		
	Allow	Deny
Outer joins:	<input checked="" type="radio"/>	<input type="radio"/>
Cross-Product joins:	<input type="radio"/>	<input checked="" type="radio"/>

4.2.46. Direct SQL Use: The solution should provide for the ability for power user to use SQL directly instead of using SQL generated based upon the application's metadata. It should be possible to enable or disable this feature on a per user basis.

Yes. Users can view & edit this SQL if you wish. Users typically will drag and drop tables/columns from metadata into the report & Cognos will create SQL in the backend. In addition to drag & drop, you have option of typing or changing the SQL in the report. Further, users can perform complex sql operations like Union, Intersect or joining between disparate data sources by either dragging and dropping the objects or typing in the sql statement as shown below.

Cognos Corporation Response to the State of Utah *Enterprise Reporting and Business Intelligence Software RFP*

The screenshot displays the Cognos Query Builder interface. On the left, the 'Insertable Objects' pane lists 'Query', 'Join', 'Union', 'Intersect', 'Except', 'SQL', and 'MDX'. The 'Query Explorer' pane shows a diagram of the query structure. The main area displays the generated SQL code for the selected query.

Query Diagram:

- Query1 (SQL) is the root query.
- Query1 is connected to Query4 via a Union operator (U).
- Query4 is connected to Query6 via a Join operator (J).
- Query6 is connected to Query5 via a Join operator (J).
- Query5 is connected to Query2 via a Join operator (J).
- Query2 is connected to Query3 via a Join operator (J).

Generated SQL:

```
select "SQL2"."Account" AS "Account", sum("SQL2"."Monetary_Amount")
AS "Monetary_Amount"
from (
select "Dim_Account"."Account" AS "Account", sum("Fact_All_Ledgers"."Monetary
Amount") AS "Monetary_Amount"

from "ps_fin"."dbo"."Dim_Account" "Dim_Account" INNER
JOIN "ps_fin"."dbo"."Fact_All_Ledgers" "Fact_All_Ledgers"
on "Fact_All_Ledgers"."Account" = "Dim_Account"."Account"

group by "Dim_Account"."Account") "SQL2"
group by "SQL2"."Account"
```

Properties - Query:

Properties - Query	
Data	
Auto Group & Summarize	Yes
Generated SQL/MDX	...
Override Dimension Info	No
Define Member Sets	No
Query Hints	
Auto-Sort	
Processing	
Avoid Division by Zero	
Rollup Processing	
Execution Optimization	

Buttons at the bottom: Copy errors to clipboard, Validate, OK, Cancel.

4.3 Business Intelligence Tool Requirements

Required Capabilities

4.3.01. Ability to Enter Custom SQL for Value Lists: The solution must allow report developers to modify or create SQL statements that will populate the selection boxes or text boxes associated with a specific parameter.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.01** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.02. Ability to Save Prompt Values: The solution must allow report developers and end users to set "default" selections for prompt values along with reports. Developers should have the option to save a copy of the report with the parameter selection values "fixed" so that the "flexible" report can be used for a more specific need.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.02** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.03. Addition of Data Elements to Reports: The solution must provide the ability to drag-and-drop selected columns into the report via a GUI.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.03** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.04. Banded Reports: The solution must allow developers and end users to specify banding options such as groups to band together, what duplicative values should be suppressed, what group calculations (sum, max, min, avg, etc.) should be produced, when new page breaks should be forced, and what group headers should be repeated.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.04** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.05. Browser-based Ad-hoc Report Creation: The solution must provide ad-hoc browser-based reporting functionality to empower non-technical users to create, modify, and publish reports and charts.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please

review the answer to **4.2.05** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.06. Business Centric Organization: The solution must allow users to select from logically grouped report objects, such as attributes and facts. Note that the logical groupings shall be maintained by a system developer. The solution must facilitate the development of groupings and object naming based upon a business user's perspective of the data that isolates users from database or other technical perspectives.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.06** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.07. Cascading Prompts: The solution must support cascading prompts. Parameters for reports shall be able to cascade—this will allow for a parameter used for one option to be used as a filter for other parameters for the report. For example, allow users to select a city in the district and then only officers in that city will display in the subsequent officer's selection box.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.07** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.08. Conditional Formatting: The solution must support conditional formatting of report elements based upon user specified thresholds or triggers.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.08** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.09. Cross Tabular Reports: The solution must support the display of data in a cross tabular report format. The solution must allow users to change the fields used to produce the columns and rows of the cross tabular report via GUI functionality. The solution should not require that a database query be re-executed to produce a new cross tabulation of data previously retrieved for a report. The solution must allow a user to undo changes in cross tabulation layout.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.09** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.10. Default Display Formats: The solution must provide the ability to define a default display format for report elements based upon their underlying data type, such as date, time, numeric, currency, and text.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please



review the answer to **4.2.10** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.11. Developer Tool GUI: The solution must provide a Graphical User Interface for system development activities such as:

- identification of data sources and connection parameters; and,
- population of end user/business names for database fields, calculations, filters, and other user selectable report elements.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.11** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.12. Drill Hierarchies: The solution must allow the system developer to define hierarchies (roll-ups/drill-downs). Objects that are included in defined hierarchies should provide end users with interactive drilling capabilities by default whenever they are used in report tables or graphics. The developer should have the option to override this behavior for specific reports and/or users.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.12** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.13. Drilling: The solution must provide the ability to drill up or down a defined hierarchy of data via the Web based GUI. The hierarchies will have been previously defined in the solution's metadata by the system developer.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.13** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.14. Embedded Images: The solution must provide the ability to embed static images such as logos from jpg, gif, bmp and other file types into the report and control the formatting and sizing of the image on the report.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.14** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.15. Formulas Stored in Metadata: The solution must allow a system developer to store the definition of derived objects in the solution's metadata. When a report that includes a derived/calculated object is run, the solution must retrieve the definition from the metadata. The solution will use the formula stored in the metadata to determine what source elements should be retrieved from the database, and how to use them to calculate the derived object. If the definition of a

calculated object is updated, all reports, graphs, filters, etc., that use a calculated object will use the updated object by default.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.15** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.16. General Calculation Requirements: The solution must provide users with built-in/predefined functions, including ranks, averages, sums, medians, rate of change (trending), and other statistical and mathematical functions.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.16** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.17. Graph Types: The solution must provide the option to display data using the following graph types: bar graphs, scatter graphs, histograms, specialized statistical graphs, pie charts, and line graphs.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.17** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.18 Graphing—Sizing and Placement: The solution must provide users with the ability to specify size and placement of the graph within a report or dashboard via GUI functionality.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.18** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.19. GUI Based Query Creation: The solution must provide a GUI for end users that allows users to create new (and modify existing) queries through a drag-and-drop process. The GUI must display a list of defined objects that can be included in the query as result elements and filters. End users must not be required to enter SQL syntax to create queries. End users must not be required to specify table join fields or relationships which should be predefined by the system developer.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.19** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.20. GUI Based Query Development: The solution must provide a Graphical User Interface (GUI) for query development by power users. This GUI will allow a user to build a database query without requiring the power user to provide SQL, database field names, or data sources. The power user will be able create and execute queries via either a drag-and-drop, or a pick-and-click interface.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.20** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.21. GUI-based Report Design and Layout: The solution must provide a GUI for end users to specify report layout and formatting options. End users will be able to add, move and delete columns, specify row sorts, specify row groupings, and change other layout options via a drag-and-drop, or a pick-and-click interface.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.21** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.22. GUI Capabilities—Power User Interface: The solution must provide a Graphical User Interface (GUI) for report layout/design for use by a power user. The GUI must allow a power user to specify the format of reports and report elements including, the segmentation of reports into header, body, and footer; grouping; filtering/parameterization; sorting; graphing/charting; mapping, and the selection of data elements from supported data sources.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.22** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.23. GUI Capability—Add Data Filters to Reports: The solution must allow the specification of data filters via a GUI.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.23** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.24. GUI Capability—Specify Sort Criteria: The solution must provide the ability to specify sort criteria via a GUI.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.24** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.25. Impact Analysis: The solution must provide impact analysis reporting that identifies:

- 1) any reporting object that utilizes a given database table and/or field; and,
- 2) any report that utilizes a given report object.



Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.40** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.26. Individual IDs: The solution must support the use of unique user IDs.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.25** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.27. Monitor and Interrupt Job Execution: The solution must provide functionality for the system administrator to monitor and stop reports or sessions causing performance degradation. When queries are stopped via the tool, all related processes must be terminated in a manner that does not continue to allocate resources to them. Termination of a job should cleanly release system resources, such as system memory and temporary disk space.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.26** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.28. Multi-pass Query Support: The solution must be able to retrieve multiple sets of data from one or more data sources, and allow a power user to produce calculations, grids, or graphical displays that leverage data from the different data sources. The solution will allow the power user to specify the elements from each result set that are related.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.27** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.29. Pagination Control: The solution must provide the ability to specify pagination rules for printed reports. As an example, users may wish to prevent groups of data from breaking across pages.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.28** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.30. Prompt Formats: The solution must allow report developers the ability to choose parameter type options through a point-and-click interface. The solution shall support the following parameter types: checkboxes, drop-down lists, free text fields, radio button groups, and list boxes.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please



review the answer to **4.2.29** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.31. Report Distribution via Single Reference/file: The solution must provide the ability to create a single file or link that contains all report components, including report parameters for a single file, in a format that can be transmitted electronically or migrated from one server to another. This will allow one office to create a report and easily share it with other offices. This would also allow the migration of reports from development environments/servers to test or production environments.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.30** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.32. Report Grouping and Organization: The solution must provide an ability to save reports to a secure hierarchy of folders. Access to folders will be restricted based on role and permissions. Users with proper access rights shall be able to create subfolders within folders to which they have access.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.31** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.33. Reports Must Support Multiple Output Formats: The solution must support displaying multiple graphs/charts and data tables on the same page of a report or dashboard. It must be possible to simultaneously represent the same data/result set using different output types. For example, the same data/result set could be represented in a line graph and a tabular table on the same page of a report. This must be supported without the need to re-execute the query for each display type. It must be also be possible to display report components (graphs, maps, tables, etc.) from separate queries on the same page of a report. For multi-page reports, it must be possible to repeat graphic displays as part of the page header in a manner that reflects the summary values of the entire data set while the individual page provides detail at a lower level. It must also be possible to repeat graphic elements as part of group headers in a manner that reflects the summary (or detail) values for a particular subset of the report's data.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.32** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.34. Role Based Authorization: The solution must support the assignment of access rights to specific reports or functionality to users based upon roles/groups they have been assigned to. It must be possible to override the role based rights for individual users.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.33** above. Cognos is unique in its ability to deliver one product and one architecture.



4.3.35. Shared and Reusable Report Components: The solution must maintain a library of report objects that can be shared among users. These objects must include report templates (with defined formatting and prompting), and defined filters allowing for collaboration among groups. Users must be able to retrieve these objects, edit them, and apply them to reports they create or edit.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.34** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.36. Sorting—Basic: The solution must allow users to sort and resort result sets in ascending or descending order through the product GUI.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.35** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.37. Sorting—Custom: The solution must allow a developer to create/identify at least one custom sort order column for each data element that can be used to override default ascending or descending sorts determined by alphabetic or numeric sorting of an element. It must be possible to use this custom sort order for use in both data tables and graphs. It must be possible to use this sort order without needing to display it on screens or printed reports.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.36** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.38. Undo Support: The solution must provide end users with an application button that will back out the last action executed by the user.

Cognos solution provides Undo button similar to windows interface.

4.3 Business Intelligence Tool Requirements Desirable Capabilities

4.3.39. Blocking of Cartesian Products: The solution should be able to detect and block execution of queries that would produce Cartesian product results.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.45** above. Cognos is unique in its ability to deliver one product and one architecture.



4.3.40. General Formatting Requirements: The solution should allow users to change the format of report elements to modify fonts, colors, logos, and line placement and size.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.39** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.41. Graph and Map Legends: The solution should support the display of numeric measures (counts, sums, averages, etc.) associated with each graph or map segment as a format option.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.37** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.42. Loop Detection and Warning: The solution should be able to detect the presence of "loops" that exist in the table relationships that a system developer has defined in the solution's metadata. The solution should be able to report the specific relationships that create the loops.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.38** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.43. Map Linking: The solution should provide the ability to include a link from a map to another map or report data via the Web based GUI so that users can access additional details about the data displayed via the map. The solution should support links which correspond to each boundary defined within a map display. The system developer should be able to define the map levels that correspond to link actions. The system developer should be able to define the link target (report, graph, map, URL, etc.)

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.42** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.44. Direct SQL Use: The solution should provide for the ability for power user to use SQL directly instead of using SQL generated based upon the application's metadata. It should be possible to enable or disable this feature on a per user basis.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.46** above. Cognos is unique in its ability to deliver one product and one architecture.



4.3.45. User ID Can Determine Data Source: The solution should be able to process queries against different database servers based upon the user ID authenticated. This should allow separate database servers to be deployed (with identical database structures) in different physical locations such that a user's query will be executed against the server that contains their region's data.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.43** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.46. Invoke Report from Another Web Application: The solution should be able to support embedded reporting needs. Specifically, it should be possible to invoke API calls to the solution toolset from within another Web application. From these API calls it should be possible to:

- 1) start reporting tool;
- 2) validate user ID with transparent (non user prompted) login—unencrypted passwords cannot be passed between the originating application and the reporting solution;
- 3) invoke a specific predefined report with parameter pass thru; and,
- 4) prevent the users from invoking other reports during this session.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.41** above. Cognos is unique in its ability to deliver one product and one architecture.

4.3.47. 3D Graphing: The solution should support graphing in as many as three dimensions (X,Y,Z).

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.44** above. Cognos is unique in its ability to deliver one product and one architecture.

4.4 Scheduling Tool Requirements

Required Capabilities

4.4.01. Caching of Query/Report Results: The solution must provide caching facilities to optimize report performance.

Cognos supports this requirement. This feature can be disabled or enabled for entire model or by a report/query.

Cross Product Allowed	
Use SQL With Clause	
Use Local Cache	<input type="checkbox"/>
Miscellaneous	(Default)
Name	No
	Yes

In addition to report/query caching, Cognos solution offers caching through OLAP cube technology. Cognos OLAP cubes can handle unlimited dimensions, over 1 billion records, so Cognos is very scalable. OLAP cubes can be refreshed automatically when the underlying data store changes in near real-time using schedules or by using database triggers that can trigger a cube refresh. Cubes will always be faster than SQL caching especially when multiple business questions are asked and when you add users the system. Cognos cubes are kept on a central server and not on end users machines. This allows for each user to work off of the same current data. From the administrator perspective, you can allow caching on the Cognos application side to enhance caching so each request comes back faster as each user uses the same “dimension”.

4.4.02. Concurrent User Support: The solution must be capable of supporting 100 concurrent users executing reports on a single server implementation. Ability to support larger numbers of users of a 1,000 or more is highly desirable.

Cognos supports this requirement. The Cognos architecture is a scalable, web services based architecture. The system is architected to leverage distributed environments for performance, scalability, and fault tolerance. This solution is scalable both vertically and horizontally to support not only an increase in the number of users of the application but also an increase in the complexity of the reports being generated and the volume of data being retrieved. Cognos leverages a Service oriented Architecture that allows for multi-tiered (taking advantage of multiple servers) and/or multi-node configurations (taking advantage of multiple processors). As data size, report frequency and complexity increases, administrators can add additional processing easily. Cognos can scale both up and out to handle increased demand. In addition Cognos has a thorough sizing exercise based on reporting requirements, data sizing, frequency and archiving used to evaluate and recommend any current and future hardware specification.

Cognos can be implemented in a clustered server environment. For clustering and for failover purposes, Cognos can mesh cleanly with external load balancing mechanisms – in what we call a “cluster compatible” mode. By setting a system to cluster compatible, you effectively tell Cognos to forget about load balancing and rely on that being done by some external mechanism – such as a router. In this case, dispatchers will always try to send incoming requests to services running on the

local machine. If such a service is not available, then the request will be forward to a dispatcher in another server on the system.

The number of concurrent users supported is more a function of the system resources than the Cognos 8 application itself. There are monitoring tools included with the Cognos 8 application for both interactive monitoring as well as the monitoring of historical activity. Monitoring services are accessible from the Server Administration option in the portal (access is based on permissions). The screenshot below shows the administration screen.

The screenshot shows the 'Server Administration' window with the 'Monitor' tab selected. It displays a list of services with columns for Name, Service, Status, Processes, Latency, Seconds per request, Requests per minute, Update interval, and Actions. The services listed include AgentService, BatchReportService, ContentManagerService, DataIntegrationService, DeliveryService, EventManagementService, JobService, LogService, MetricsManagerService, and MonitorService.

Name	Service	Status	Processes	Latency	Seconds per request	Requests per minute	Update interval	Actions
http://wvanmottk-xp:9300 > AgentService	Agent service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > BatchReportService	Batch Report service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > ContentManagerService	Content Manager service	Running	0/2	0/0	4.437	14	...	More...
http://wvanmottk-xp:9300 > DataIntegrationService	Data Integration service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > DeliveryService	Delivery service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > EventManagementService	Event Management service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > JobService	Job service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > LogService	Log service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > MetricsManagerService	Metric Studio service	Running	0/2	0/0	0	0	...	More...
http://wvanmottk-xp:9300 > MonitorService	Monitor service	Running	0/2	0/0	0	0	...	More...

4.4.03. Scheduled Reports—Output formats: The solution must provide the ability to produce scheduled report outputs (reports, charts, graphs, maps, and data files) in any of the following formats: PDF, Microsoft Excel, CSV, XML, HTML, and the solution's native output format.

Cognos solution gives the user executing the report the option of which output format(s) to generate. Formats include: HTML, CSV, PDF, Excel and XML. The user can select one or more formats to be generated with each report execution. The report is executed once and the results are then rendered into the selected format(s). These reports can be run on-demand or scheduled to run daily, weekly, monthly, yearly or by an external trigger.

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☐ Disable the schedule

Frequency:
Select the frequency by clicking on a link.

By Day By Week By Month By Year By Trigger

Every 1 week(s) on:

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday
☒ Friday ☐ Saturday ☐ Sunday

Options

☒ Override the default values

Formats:
☒ HTML
☐ PDF
 Orientation:
 Default
 Paper size:
 Default

☐ Excel 2000 Single Sheet
☐ Excel 2002
☐ Delimited text (CSV)
☐ XML

Start:
 Jan 26, 2007
 3 : 13 PM

End:
☒ No end date
☐ End by:
 Jan 26, 2007
 3 : 13 PM

Languages:
 English (United States) Select the languages...

Delivery:
 Select at least one delivery method. For burst reports, the email recipients are determined by the burst specification.

☒ Save:
☒ Save the report
☐ Save the report as a report view Edit the save as options...
 ...> Report View of Public Health Dashboard

☐ Print the report in PDF format: Select a printer...

☐ Send a link to the report by email Edit the email options...
 Administrator (Administrator)

Prompt values

☐ Override the default values
 No values saved

OK Cancel

4.4.04. Supported Delivery Methods: The solution must support the delivery of scheduled reports via the following methods:

- application folders (both user specific and shared);
- SMTP compatible e-mail;
- directly to a network printer; and,
- to a file in a defined network output destination.

Distribution of reports can be sent to a defined shared network folder, email inbox, or network printer or can be viewed from Cognos portal.

☐ Disable the schedule

Frequency:
Select the frequency by clicking on a link.

By Day By Week By Month By Year By Trigger

Every 1 week(s) on:

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday
☒ Friday ☐ Saturday ☐ Sunday

Options

☒ Override the default values

Formats:
☒ HTML
☐ PDF
 Orientation:
 Default
 Paper size:
 Default

☐ Excel 2000 Single Sheet
☐ Excel 2002
☐ Delimited text (CSV)
☐ XML

Start:
 Jan 26, 2007
 3 : 13 PM

End:
☒ No end date
☐ End by:
 Jan 26, 2007
 3 : 13 PM

Languages:
 English (United States) Select the languages...

Delivery:
 Select at least one delivery method. For burst reports, the email recipients are determined by the burst specification.

☒ Save:
☒ Save the report
☐ Save the report as a report view Edit the save as options...
 ...> Report View of Public Health Dashboard

☐ Print the report in PDF format: Select a printer...

☐ Send a link to the report by email Edit the email options...
 Administrator (Administrator)

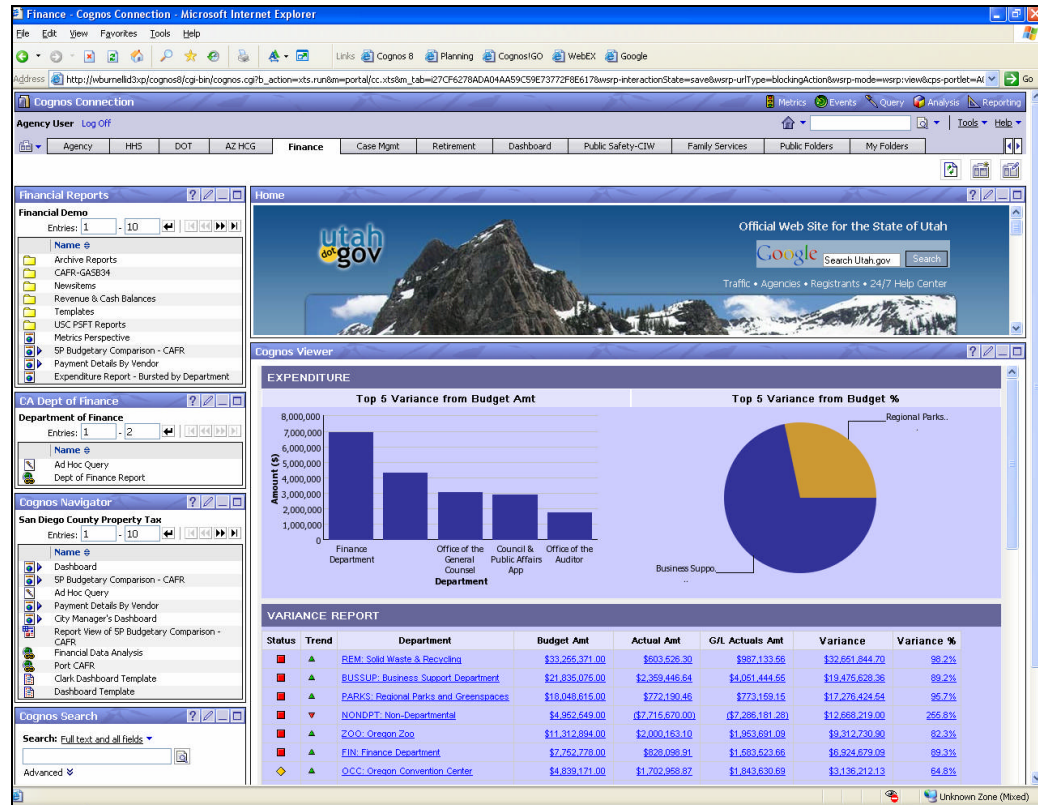
Prompt values

☐ Override the default values
 No values saved

OK Cancel

Send to Printer
 Email Report
 Save Report

Reports can also be retrieved from Cognos Portal as shown below.



Scheduling Tool Requirements

Desirable Capabilities

4.4.05. Query Governing by Time, Row Count, etc.: The solution should allow the implementation of query governors based upon row count and/or execution time. The solution should allow the assignment of different thresholds for different users and/or user groups. The solution should allow the use of different thresholds for different times of the system processing cycle.

The metadata layer can be configured to include 'governors' to help prevent runaway queries. Governors can include limits on the time a query takes to execute, the number of rows that can be retrieved by a query, the number of tables that can be joined in a single query, denying of Cartesian joins, limiting sorting to indexed columns, etc. End users can not set time limits for query execution however they do have the ability to cancel a query that is executing dynamically or to cancel a query that is scheduled to run or is currently running in batch mode.

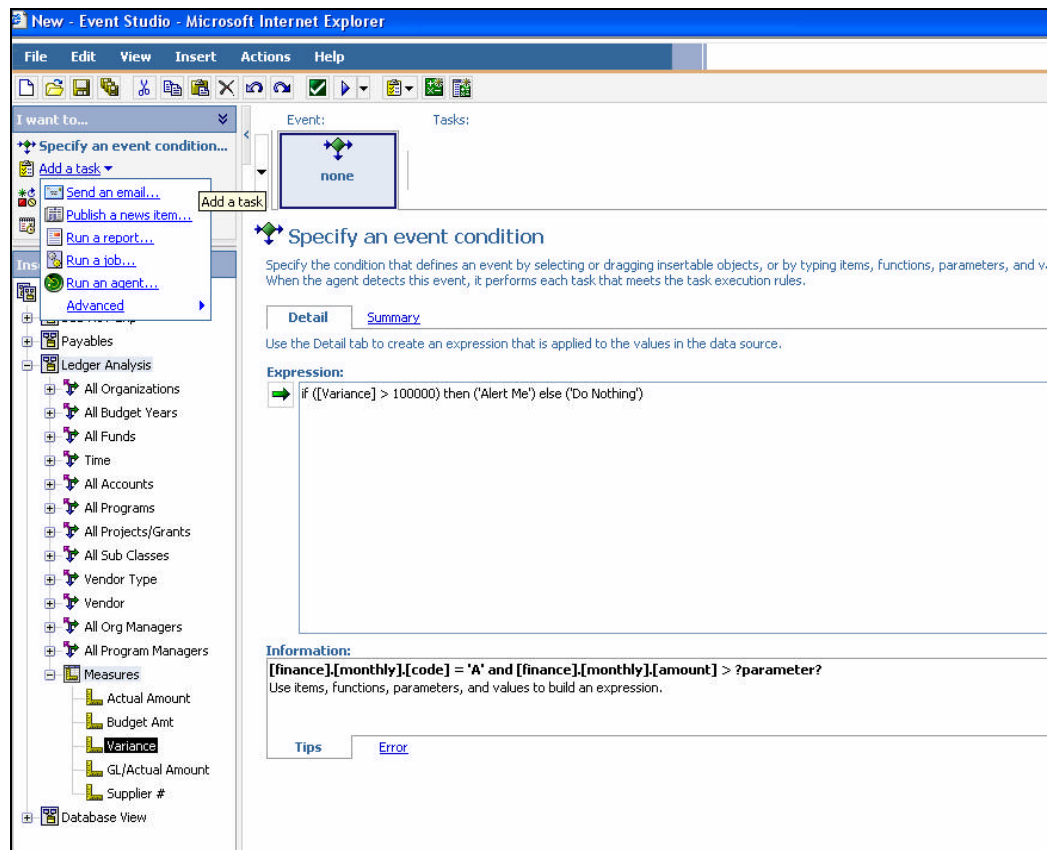
Administrators can control the number of concurrent query processes for a given peak period by specifying the number of reports allowed to be run at any given time. This can be specified for each dispatcher (report server), user groups and users. Per report (or group of reports), system administrators can specify the number of rows that are allowed to be returned, as well as the allotment of resources necessary to run the report (or group of reports).

<input type="checkbox"/>		Tuning	Server group		Yes
<input type="checkbox"/>		Tuning	Number of high affinity connections for the batch report service	1	Yes
<input type="checkbox"/>		Tuning	Number of low affinity connections for the batch report service	4	Yes
<input type="checkbox"/>		Tuning	Maximum number of processes for the batch report service	2	Yes
<input type="checkbox"/>		Tuning	Governor limit (MB)	10	Yes
<input type="checkbox"/>		Tuning	Number of high affinity connections for the Interactive report service	1	Yes
<input type="checkbox"/>		Tuning	Number of low affinity connections for the Interactive report service	4	Yes
<input type="checkbox"/>		Tuning	Maximum number processes for the Interactive report service	2	Yes
<input type="checkbox"/>		Tuning	Peak period start hour	7	Yes
<input type="checkbox"/>		Tuning	Peak period end hour	18	Yes
<input type="checkbox"/>		Tuning	Maximum number of jobs during peak period	4	Yes
<input type="checkbox"/>		Tuning	Maximum number of jobs during non-peak period	8	Yes

Figure: Specifying concurrent process limits

4.4.06. Threshold-based Report Distribution: The solution should support event driven execution based on business rules that will trigger automatic generation and e-mail distribution of reports.

The event management functionality available with Cognos solution would allow alerts to be authored based on specified criteria.



When a particular event takes place (occurrence of a value in the database being only one example), one or more actions can take place as a result (i.e. email a notification, launch a process, update a table, etc).

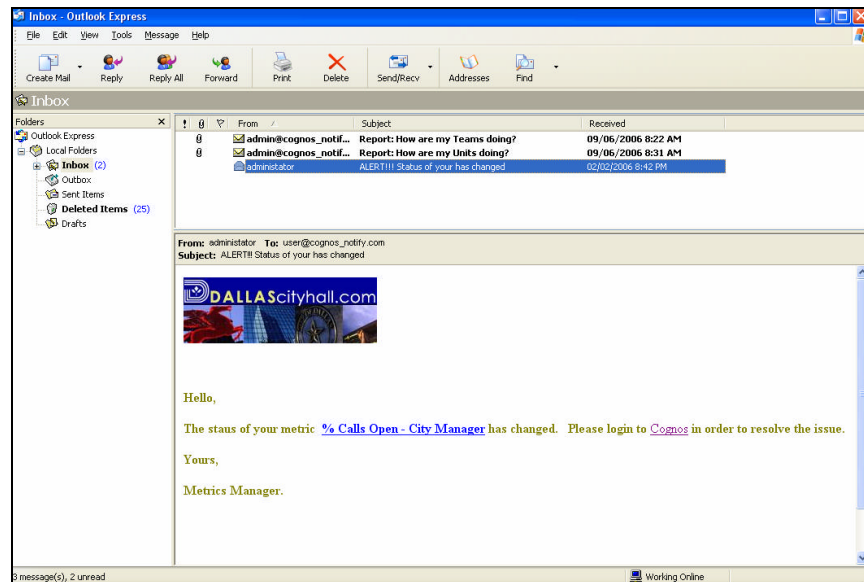


Figure: Performance alert via email

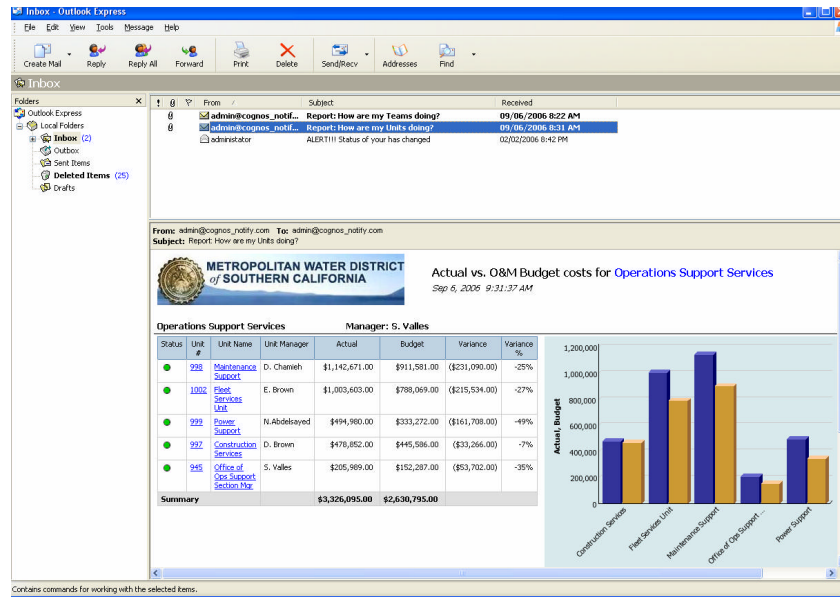
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Figure: Report distribution via Email

4.4.07. User Scheduling of Reports: The solution should allow users (who have been granted permission) to submit reports for server based execution with results stored for their retrieval. Users should be able to specify if the report should be executed immediately, or on a scheduled basis. The solution should allow the user to specify a date and time for report execution. The solution should allow the user to specify recurring execution based on daily, weekly, or monthly execution. All user scheduled reports should be subject to override or deferral by the system administrator to preclude conflicts with system maintenance activities.

Users scheduling reports have the ability to specify the output format and the delivery method. These reports can be run on-demand or scheduled to run daily at a specific time, weekly, monthly, yearly or by an external trigger.

Schedule - SP Budgetary Comparison - CAFR

Schedule this entry to run at a recurring date and time. You can run using the default values or specify the options. You can disable the schedule without losing any of its details.

☐ Disable the schedule

Frequency:
Select the frequency by clicking on a link.

☒ By Day ☐ By Week ☐ By Month ☐ By Year ☐ By Trigger

☐ Every 1 minute(s)
☐ Every 1 hour(s)
☒ Every 1 day(s)

Options

☒ Override the default values

Formats:
☒ HTML
☐ PDF

Orientation:
Default

Paper size:
Default

☐ Excel 2000 Single Sheet
☐ Excel 2002
☐ Delimited text (CSV)
☐ XML

Languages:
English (United States) [Select the languages...](#)

Delivery:
Select at least one delivery method. For burst reports, the email recipients

☒ Save:
☒ Save the report
☐ Save the report as a report view [Edit the save as options...](#)
...> Report View of SP Budgetary Comparison - CAFR

☐ Print the report in PDF format: [Select a printer...](#)

☐ Send a link to the report by email [Edit the email options...](#)
Administrator (Administrator)

Prompt values
☐ Override the default values
No values saved

OK Cancel

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Administrators also have the ability to view and monitor reports which have been scheduled. Below is a screenshot of the report monitoring functionality.

Activity - Schedule Management - Microsoft Internet Explorer

Address: <http://www.nottk-xp/cognos8/cgi-bin/cognos.cgi>

Schedule Management

DemoAdmin Log Off

Activity Schedule

View and manage run activities. You can use the options to view entries that are completed and that are presently running.

Period:
☐ Last 4 hours
☒ From: Jan 1 2006 To: Mar 13 2006
 11 : 27 AM 11 : 27 AM

Scope:
 Entries I ran

Status:
 All statuses

Summary

3	Total
0	Pending
0	Executing
0	Failed
3	Succeeded
0	Suspended
0	Terminated
0	Purged
0	Cancelled

Apply

Entries: 1 - 3

	Name	Request time	Start time	Completion time	Status	Actions
<input type="checkbox"/>	D2G Product Line Business Report	February 8, 2006 10:42:06 AM	February 8, 2006 10:42:06 AM	February 8, 2006 10:42:26 AM	Succeeded	
<input type="checkbox"/>	D2G Product Line Business Report	February 7, 2006 9:28:13 AM	February 7, 2006 9:28:13 AM	February 7, 2006 9:29:01 AM	Succeeded	
<input type="checkbox"/>	PFv5	January 19, 2006 2:08:48 PM	January 19, 2006 2:08:48 PM	January 19, 2006 2:09:16 PM	Succeeded	

4.5 Mapping Requirements

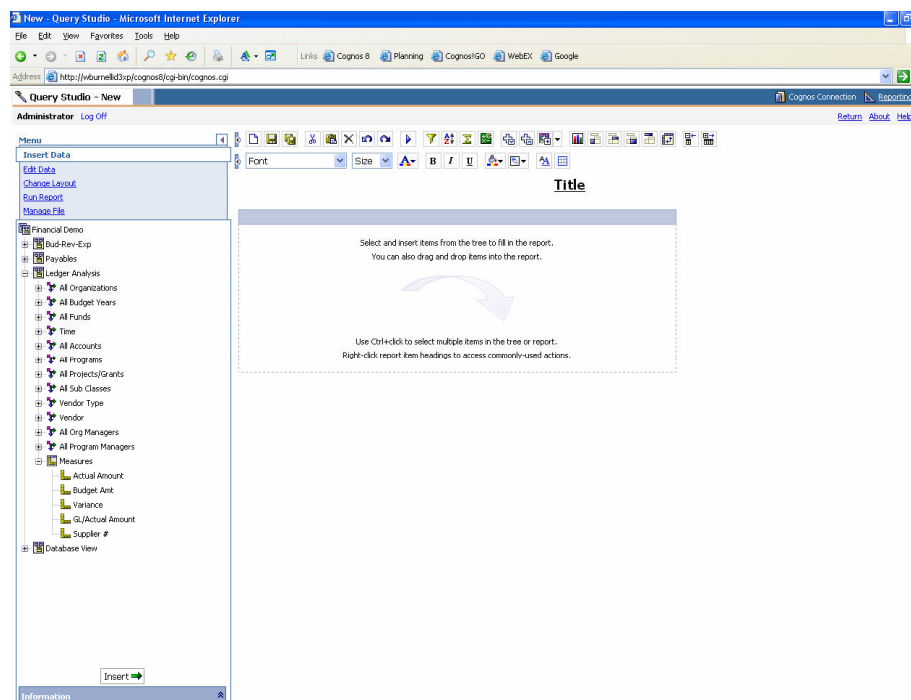
Required Capabilities

4.5.01. GUI Based Query Creation: The solution must provide a GUI for end users that allows users to create new (and modify existing) queries through a drag-and-drop process. The GUI must display a list of defined objects that can be included in the query as result elements and filters. End users must not be required to enter SQL syntax to create queries. End users must not be required to specify table join fields or relationships which should be predefined by the system developer.

Cognos defines an report/query as one wherein users start from a blank page, without any prior structure, and from that point, choose their own data, their own rows, their own columns, their own filters, their own calculations, in a business-user-friendly environment that is 100% browser-based with no applets, downloads, plugins or client software. Users are typically a smaller community of individuals. These users have varied and unpredictable needs but do necessarily not know SQL, nor the target database(s) they are querying.

Cognos provides a true query environment that allows these users this access in an easy to use interface. Other vendors will try to pre-create prompted reports to cover some query needs – however these environments do not go far enough in giving these power users access to information.

The query interface displays on the left hand side all of the tables/views/columns/fields to which the individual user has access. This may include information from multiple databases.



Data can be added to the report simply by drag-and-dropping it into the query window or by clicking on the item itself:

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Department

Department	Actual Amount
CNPA: Council & Public Affairs App	\$862,448.00
AUDIT: Office of the Auditor	\$251,717.00
OGC: Office of the General Counsel	\$416,895.00
PARKS: Regional Parks and Greenspaces	\$796,113.00
FIN: Finance Department	\$828,114.00
BUSSUP: Business Support Department	\$2,381,409.00
PLAN: Planning Department	\$552,604.00
ZOO: Oregon Zoo	\$2,177,186.00
REM: Solid Waste & Recycling	\$683,233.00
ADMIN: MERC Administration	(\$77,885.00)
OCC: Oregon Convention Center	\$1,702,918.00
EXPO: Expo Center	\$1,073,242.00
PCPA: Portland Ctr for Perform. Arts	\$1,458,712.00
NONOP: Non-Operating	\$1,254,848.00
BOND: Bond Accounts	\$1,756,066.00
NONOPT: Non-Departmental	(\$7,715,671.00)
Summary	\$8,401,949.00

All of the joins and cardinality have been established by the administrators beforehand, freeing users up to simply ask their business questions. Descriptions of each item are also available to the end user by simply hovering the mouse over the column or table.

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Query Studio - New

Administrator Log Off

Menu

Insert Data

Edit Data

Change Layout

Run Report

Manage File

Font

Size

B I U

Title

Department	Actual Amount
CNPA: Council & Public Affairs App	\$862,448.00
AUDIT: Office of the Auditor	\$251,717.00
OGC: Office of the General Counsel	\$416,895.00
PARKS: Regional Parks and Greenspaces	\$796,113.00
FIN: Finance Department	\$828,114.00
BUSSUP: Business Support Department	\$2,381,409.00
PLAN: Planning Department	\$552,604.00
ZOO: Oregon Zoo	\$2,177,186.00
REM: Solid Waste & Recycling	\$683,233.00
ADMIN: MERC Administration	(\$77,885.00)
OCC: Oregon Convention Center	\$1,702,918.00
EXPO: Expo Center	\$1,073,242.00
PCPA: Portland Ctr for Perform. Arts	\$1,458,712.00
NONOP: Non-Operating	\$1,254,848.00
BOND: Bond Accounts	\$1,756,066.00
NONDPT: Non-Departmental	(\$7,715,671.00)
Summary	\$8,401,949.00

Typical capabilities such as grouping, sorting, and filtering can be done directly from the top toolbar.

Query Studio - New

Administrator Log Off

Menu

Insert Data

Edit Data

Change Layout

Run Report

Manage File

Font

Size

B I U

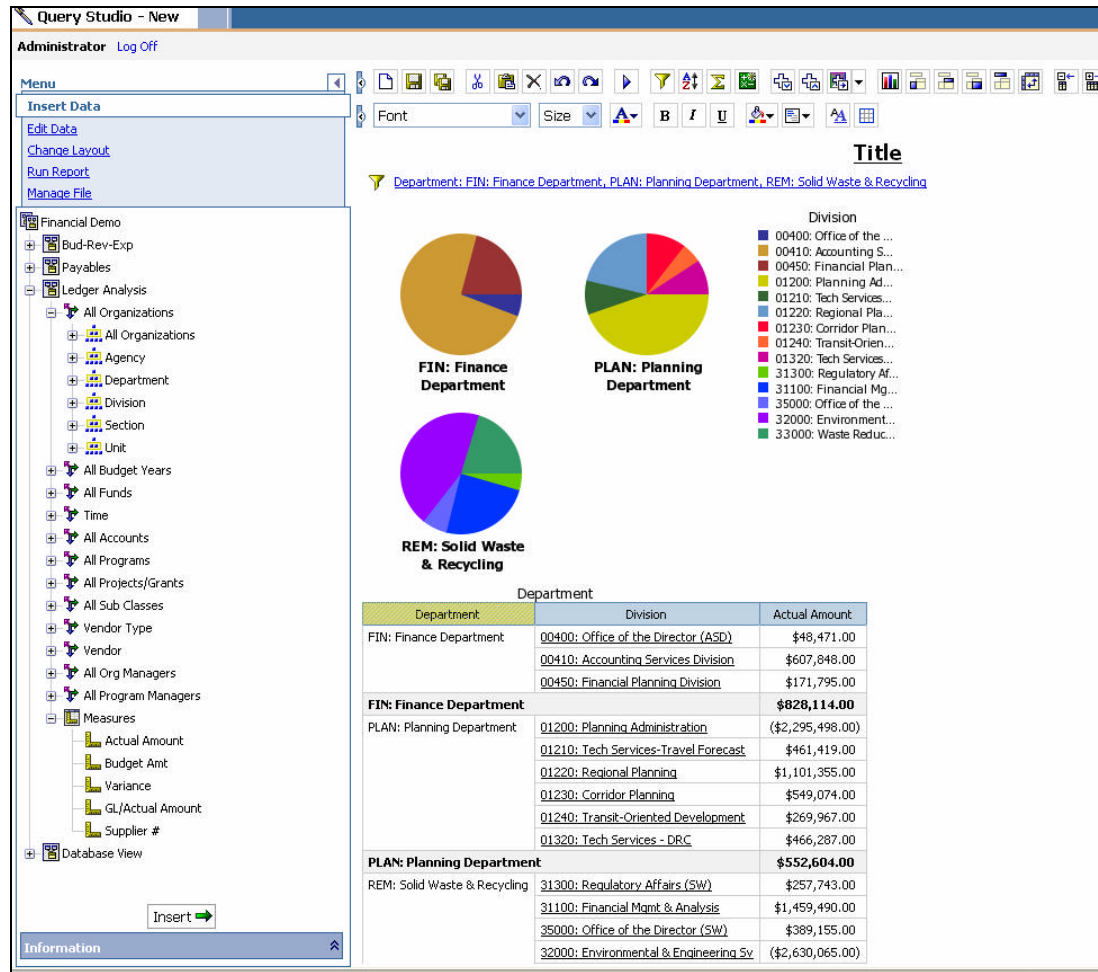
Title

Department: FIN: Finance Department, PLAN: Planning Department, REM: Solid Waste & Recycling

Department	Division	Actual Amount
FIN: Finance Department	00400: Office of the Director (ASD)	\$48,471.00
	00410: Accounting Services Division	\$607,848.00
	00450: Financial Planning Division	\$171,795.00
FIN: Finance Department		\$828,114.00
PLAN: Planning Department	01200: Planning Administration	(\$2,295,498.00)
	01210: Tech Services-Travel Forecast	\$461,419.00
	01220: Regional Planning	\$1,101,355.00
	01230: Corridor Planning	\$549,074.00
	01240: Transit-Oriented Development	\$269,967.00
	01320: Tech Services - DRC	\$466,287.00
PLAN: Planning Department		\$552,604.00
REM: Solid Waste & Recycling	31300: Regulatory Affairs (SW)	\$257,743.00
	31100: Financial Mgmt & Analysis	\$1,459,490.00
	35000: Office of the Director (SW)	\$389,155.00
	32000: Environmental & Engineering Sv	(\$2,630,065.00)
	33000: Waste Reduction & Outreach	\$1,206,910.00
REM: Solid Waste & Recycling		\$683,233.00
Summary		\$2,063,951.00

Insert

In addition, custom calculations, percentages, formats and rankings can be added to the report. Data can also be viewed at anytime in a number of graphical formats.



These reports give the Power User access to the data they need, when they need it. These reports can also be saved and taken into the web-based professional authoring tool by the report building if they need to be enhanced further then the capabilities of the power user allow.

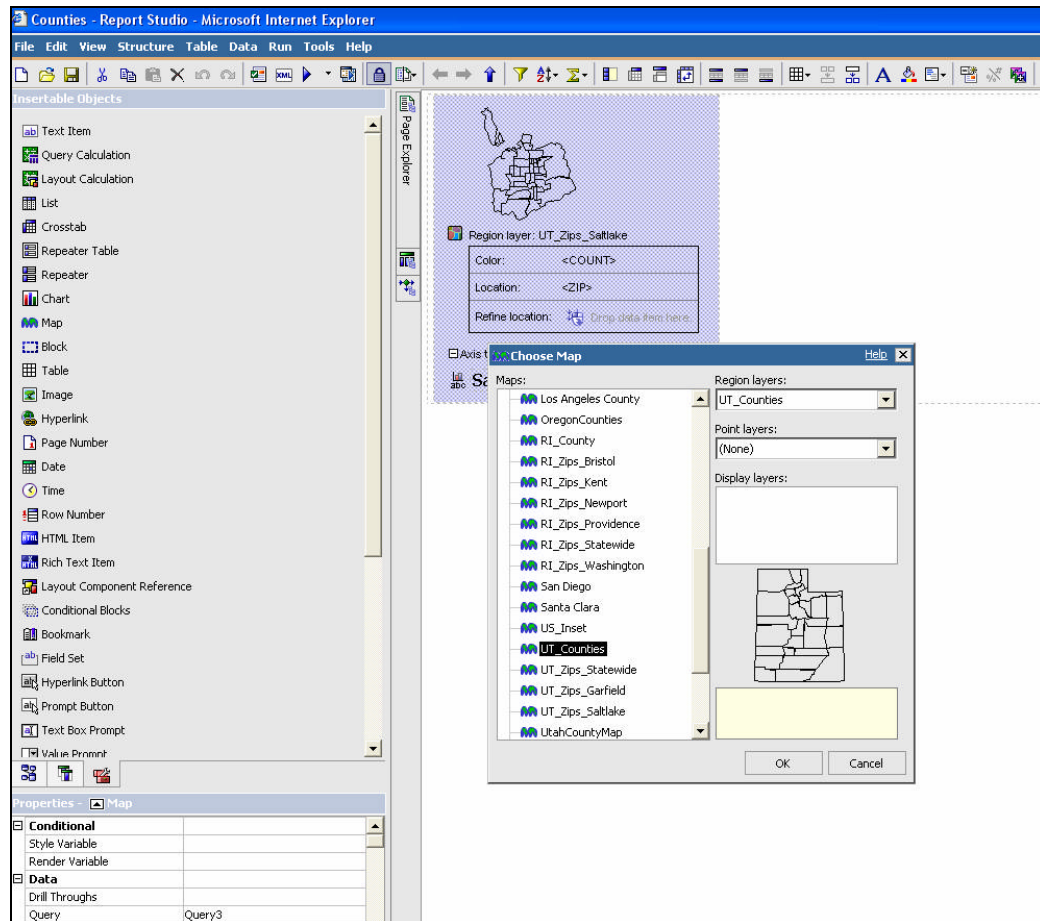
Note that all of the above functionality is 100% web-based, with no applets, downloads, client software or plugins. Contrast this with other vendors who claim a “Web-based” Ad-Hoc tool, but really require applets, downloads, and client software or plugins to deliver functionality of comparable richness.

4.5 Mapping Requirements

Desirable Capabilities

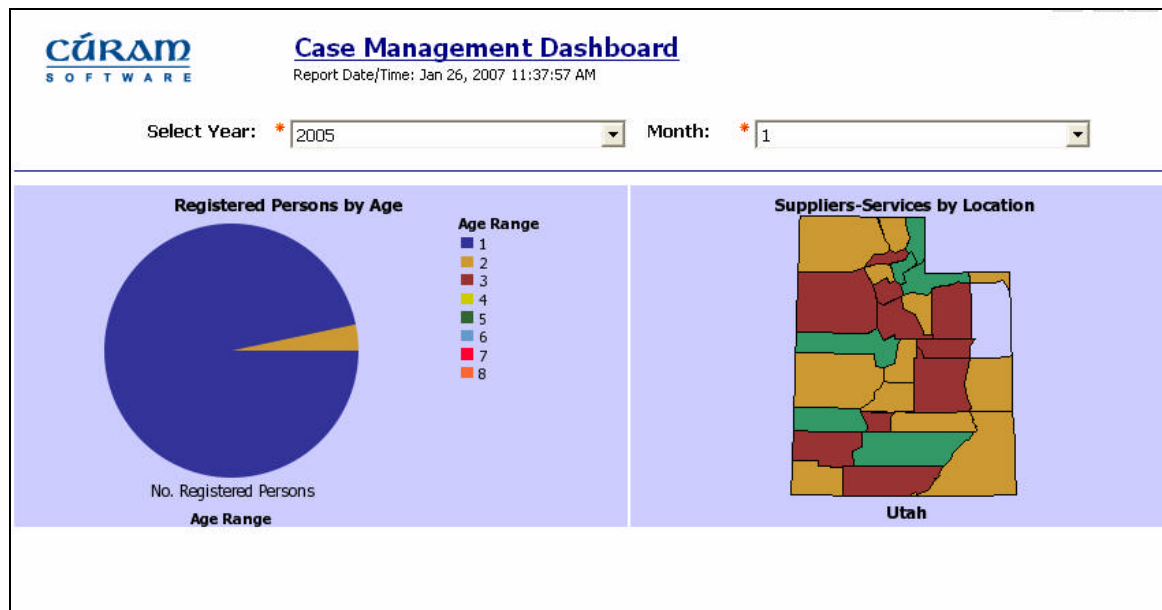
4.5.02. Add a Map to Existing Report: The solution should allow a power user to add a map to a report developed by another user (power user or end user) without requiring the report be redeveloped. Once a map is added to a report by a power user it should be possible for end users to open, view, and print the report with the newly added map.

Users can add a map to a report by dragging and dropping the *map object* into report. These maps can be shared among users via a common library. Screenshot of map report creation is shown below.

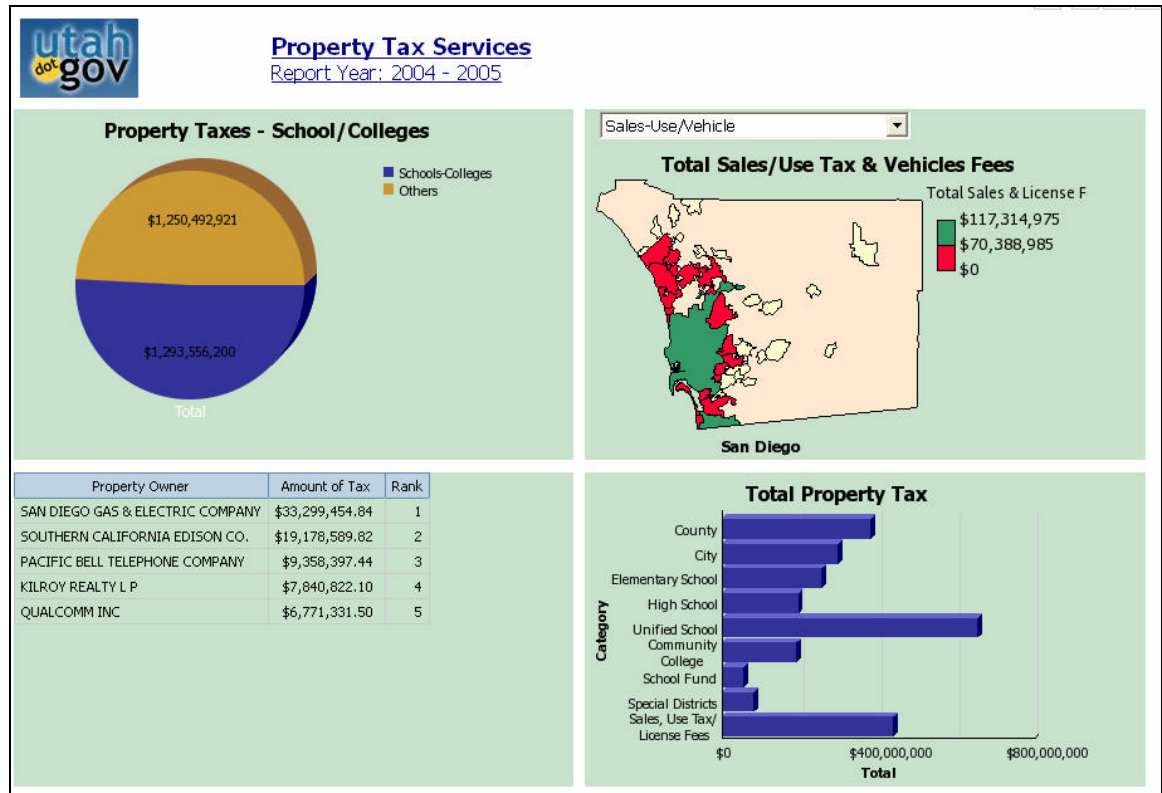


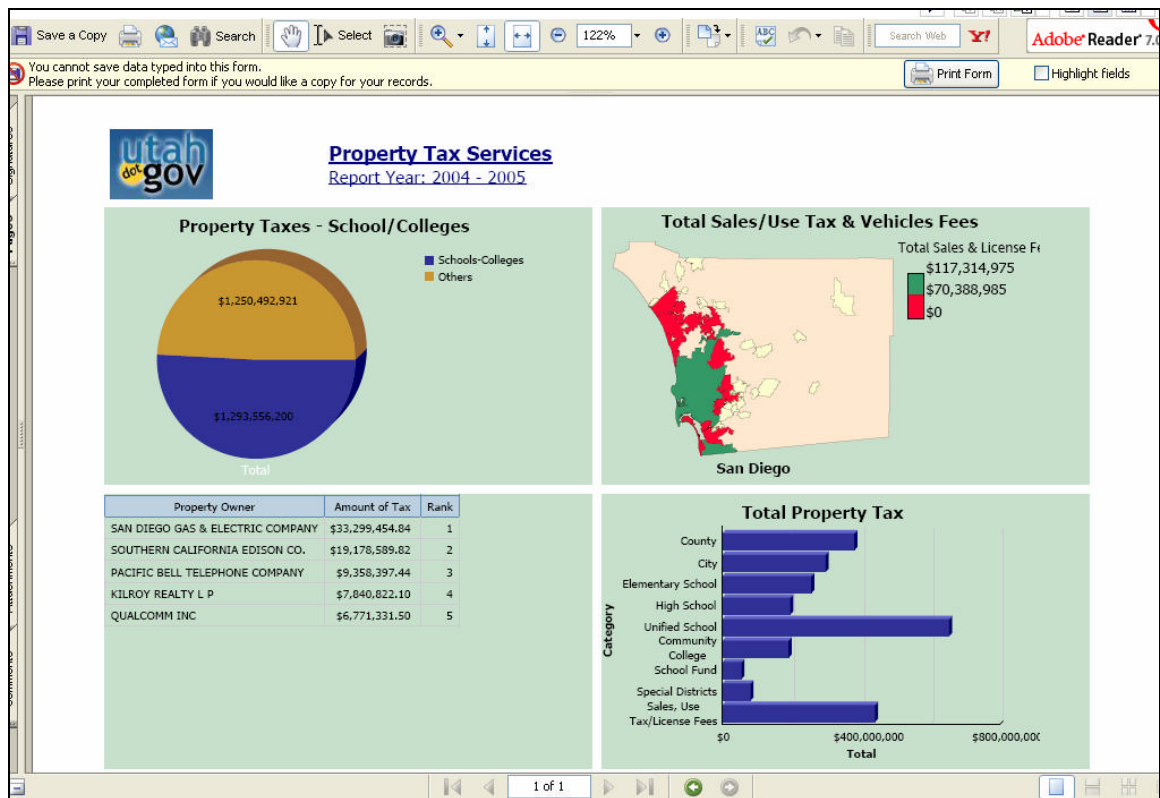
4.5.03. Combined Map and Table Report: The solution should allow a power user to create reports that include both a map and a table of data on the same page for display and printing.

Cognos supports this requirement. In the below report, a combination of map, graph and table is shown both in PDF and HTML formats. Each of these graphs can contain data from disparate data sources. For example, data source for the GIS system,, Pie Chart data from Oracle, Bar Graph from SQL server 2005.



Example :1

Example :2
HTML format.



PDF Format

4.5.04. Graph and Map Legends: The solution should support the display of numeric measures (counts, sums, averages, etc.) associated with each graph or map segment as a format option.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to 4.2.37 above. Cognos is unique in its ability to deliver one product and one architecture.

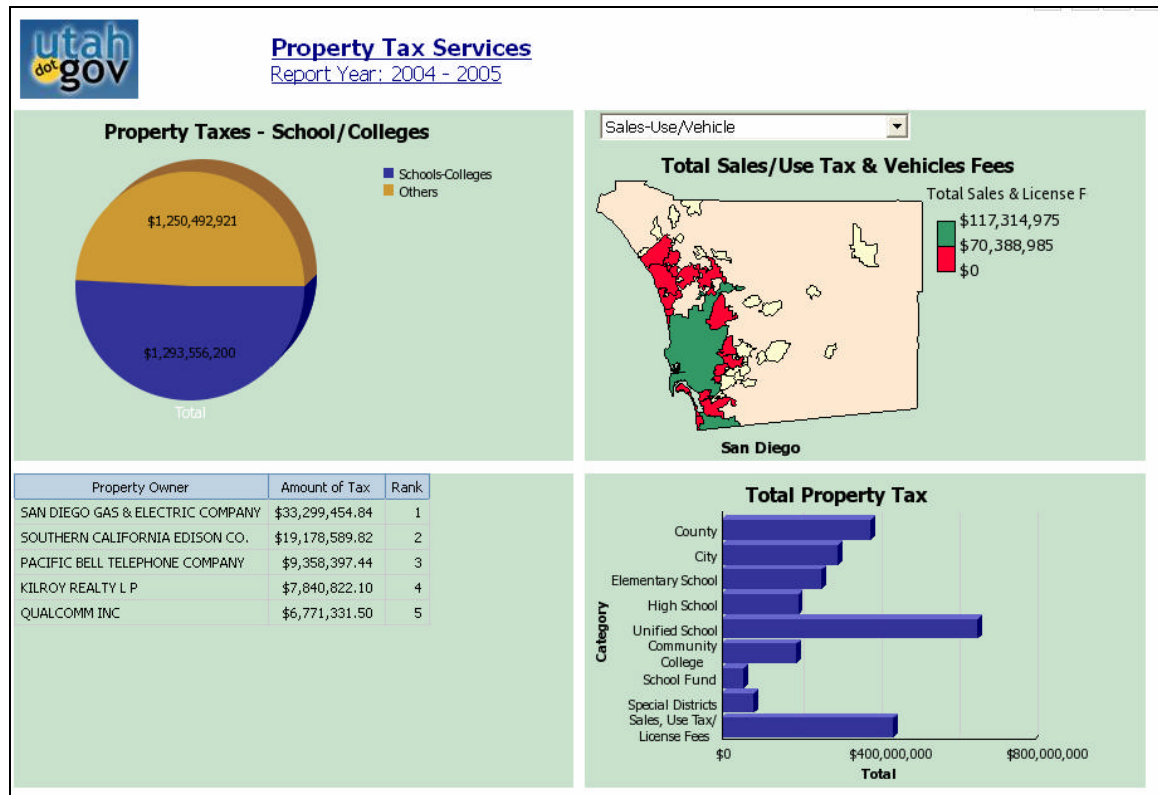
4.5.05. Invoke Report from Another Web Application: The solution should be able to support embedded reporting needs. Specifically, it should be possible to invoke API calls to the solution toolset from within another Web application. From these API calls it should be possible to:

- 1) start reporting tool;
- 2) validate user ID with transparent (non user prompted) login—unencrypted passwords cannot be passed between the originating application and the reporting solution;
- 3) invoke a specific predefined report with parameter pass thru; and,
- 4) prevent the users from invoking other reports during this session.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to 4.2.41 above. Cognos is unique in its ability to deliver one product and one architecture.

4.5.06. Map and Data on Single Output: The solution should allow a users to create and print a report that includes both a map display of data and the corresponding table of data on a single page of a report.

Cognos supports this requirement. In the below report, a combination of map, graph and list report is shown. Each of these graphs can contain data from disparate data sources. For example, data source for the GIS system,, Pie Chart data from Oracle, Bar Graph from SQL server 2005.

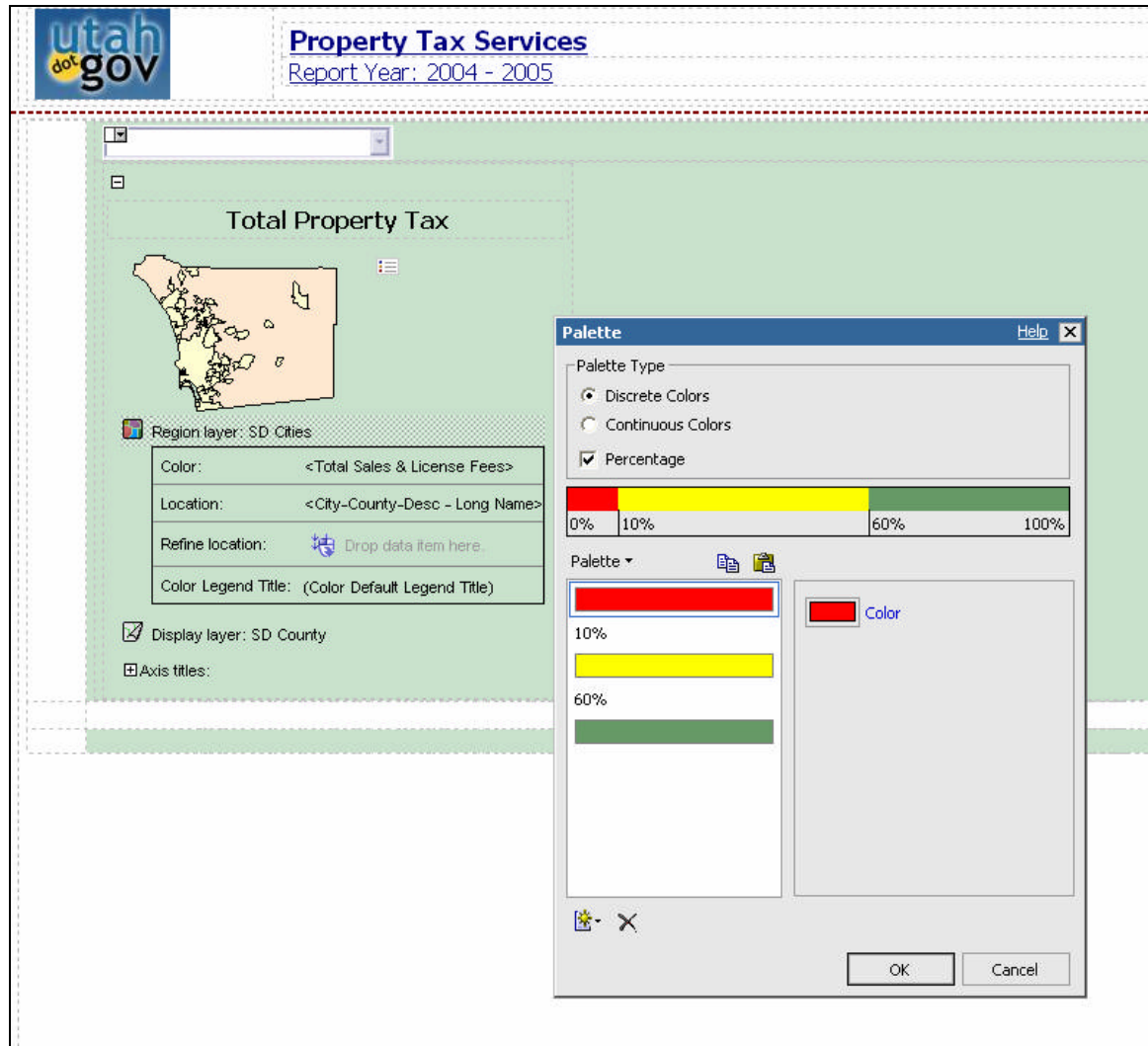


4.5.07. Map Linking: The solution should provide the ability to include a link from a map to another map or report data via the Web based GUI so that users can access additional details about the data displayed via the map. The solution should support links which correspond to each boundary defined within a map display. For example, if a State map is displayed, with individual districts or groups defined within the map, it should be possible to provide a link based upon which district or group a user clicks on. The system developer should be able to define the map levels that correspond to link actions. The system developer should be able to define the link target (report, graph, map, URL, etc.).

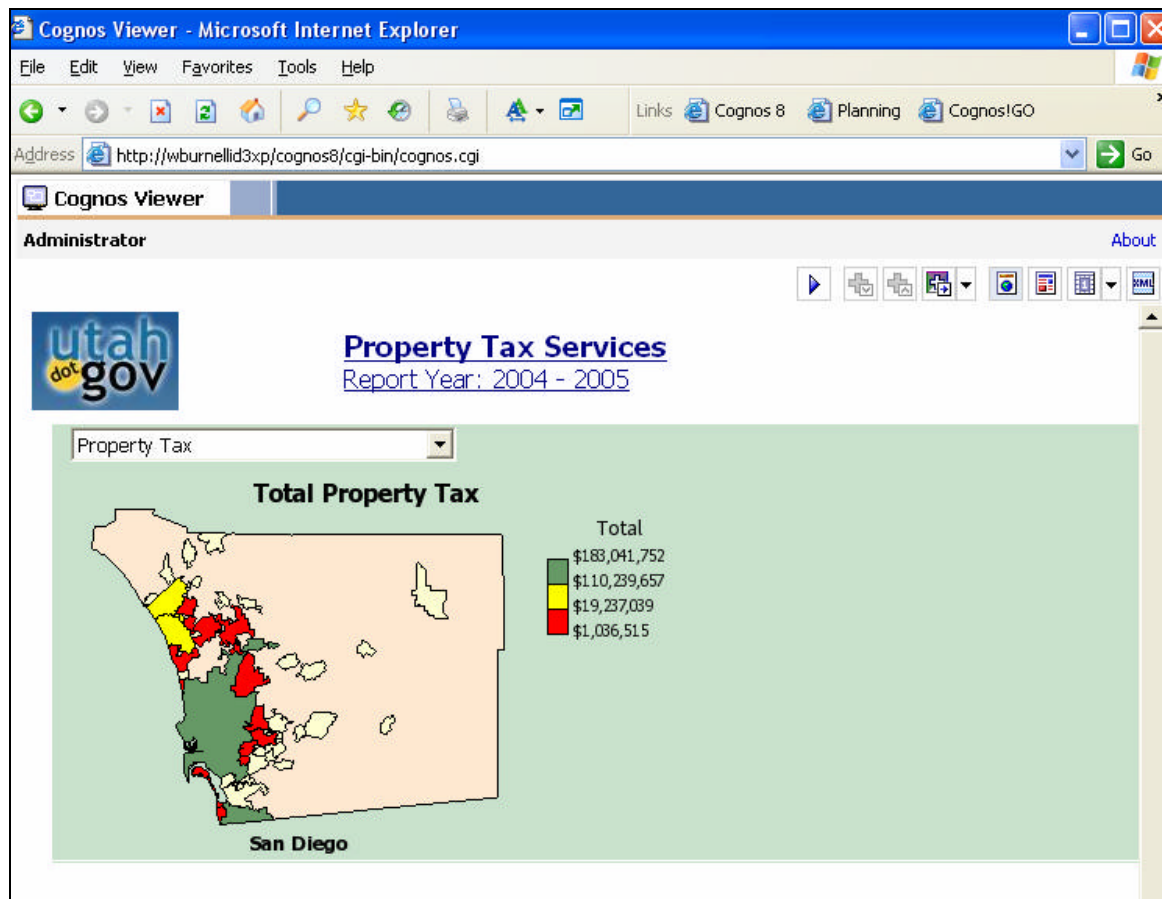
Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to 4.2.42 above. Cognos is unique in its ability to deliver one product and one architecture.

4.5.08. Mapping: The solution should provide users with the capability of adding maps (based upon geographic boundary specifications) into reports and dashboards into their reports using drag-and-drop or pick-and-click functionality. The user should be able to assign color coding of various types to districts based upon numeric data retrieved via the solution.

Cognos supports this requirement. From the drag-and-drop interface, users can create maps and assign color coding based on the data results as shown below.



Result of color coding the above graph is shown below:



4.5.09. Mapping—Copy and Paste: The solution should allow a user to copy maps that are displayed in the reporting interface and paste them into the following products: Corel WordPerfect, Microsoft Word, Microsoft PowerPoint, and Microsoft Excel.

Cognos provides ability to copy and paste maps created from Cognos reporting solution to Microsoft Office suite.

4.5.10. Undo Support: The solution should provide end users with an application button that will back out the last action executed by the user.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.3.38** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6 Dashboard/Scorecard Tool Requirements

Required Capabilities

4.6.01. Business Centric Organization: The solution must allow users to select from logically grouped report objects, such as attributes and facts. Note that the logical groupings shall be maintained by a system developer. The solution must facilitate the development of groupings and object naming based upon a business user's perspective of the data that isolates users from database or other technical perspectives.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.06** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.02. Cascading Prompts: The solution must support cascading prompts. Parameters for reports shall be able to cascade—this will allow for a parameter used for one option to be used as a filter for other parameters for the report. For example, allow users to select a city in the district and then only officers in that city will display in the subsequent officer's selection box.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.07** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.03. Conditional Formatting: The solution must support conditional formatting of report elements based upon user specified thresholds or triggers.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.08** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.04. Cross Tabular Reports: The solution must support the display of data in a cross tabular report format. The solution must allow users to change the fields used to produce the columns and rows of the cross tabular report via GUI functionality. The solution must not require that a database query be re-executed to produce a new cross tabulation of data previously retrieved for a report. The solution must allow a user to undo changes in cross tabulation layout.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.09** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.05. Default Display Formats: The solution must provide the ability to define a default display format for report elements based upon their underlying data type such as date, time, numeric, currency, and text.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.10** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.06. Developer Tool GUI: The solution must provide a Graphical User Interface for system development activities such as:

- identification of data sources, and connection parameters; and,
- population of end user/business names for database fields, calculations, filters, and other user selectable report elements.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.11** above. Cognos is unique in its ability to deliver one product and one architecture.

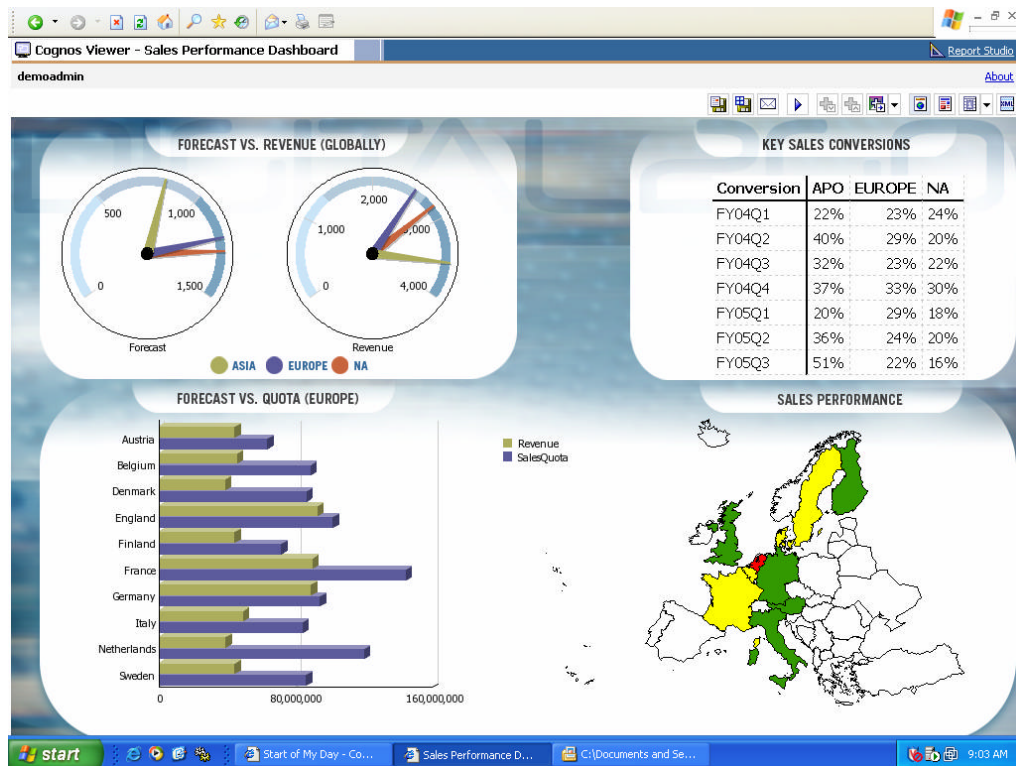
4.6.07. Display Components: The solution must support the development of dashboards to display high level data for management to use in tracking trends and key performance indicators for the organization. The display formats shall include graphing, threshold-level displays, gauges, and other indicators of events and measures displayed within the same window.

Cognos 8 business dashboards communicate complex information quickly. They translate information from your various corporate systems and data into visually rich presentations using gauges, maps, charts, and other graphical elements to show multiple results together.

The complete reporting capability of Cognos 8 BI supports your need for business dashboards. You do not require a separate application to build or use dashboard reports, saving additional cost, administration time, and training.

Benefits of dashboard reports with Cognos 8

- § Provide one, simple version of business issues for an at-a-glance understanding and faster action.
- § Present a dynamic, real-world view of business with timely data refreshes.
- § Drill-through to access other data sources and reports for more detail about what the dashboard shows you.
- § Unite data from different core areas such as sales, marketing, finance, HR, logistics, and distribution so you can see a complete, multi-department picture.
- § High-impact visuals let users bring data to life in virtually any presentation type with interactivity, multiple 2D and 3D chart types, color-coded drillable maps, animated reports, and more.
- § Dashboard reports are easy to use and require no custom coding.

Cognos Corporation Response to the State of Utah *Enterprise Reporting and Business Intelligence Software RFP*

4.6.08. Drill Hierarchies: The solution must allow the system developer to define hierarchies (roll-ups/drill-downs). Objects that are included in defined hierarchies should provide end users with interactive drilling capabilities by default whenever they are used in report tables or graphics. The developer should have the option to override this behavior for specific reports and/or users.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to 4.2.12 above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.09. Drilling: The solution must provide the ability to drill up or down a defined hierarchy of data via the Web based GUI. The hierarchies will have been previously defined in the solution's metadata by the system developer.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to 4.2.13 above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.10. Embedded Images: The solution must provide the ability to embed static images such as logos from jpg, gif, bmp, and other file types into the report and control the formatting and sizing of the image on the report.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please

review the answer to **4.2.14** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.11. General Calculation Requirements: The solution must provide users with built-in/predefined functions, such as ranks, averages, sums, medians, rate of change (trending), and other statistical and mathematical functions.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.16** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.12. General Formatting Requirements: The solution must allow users to change the format of report elements to modify fonts, colors, logos, and line placement and size.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.39** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.13. Graph and Map Legends: The solution must support the display of numeric measures (counts, sums, averages, etc.) associated with each graph or map segment as a format option.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.37** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.14. Graph Types: The solution must provide the option to display data using the following graph types: bar graphs, pie charts, and line graphs.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.17** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.15. Graphing—Sizing and Placement: The solution must provide users with the ability to specify size and placement of the graph within a report or dashboard via GUI functionality.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.18** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.16. GUI Based Dashboard Development: The solution must allow a developer to create dashboards using a drag-and-drop development environment that is integrated with the solution set. Using the GUI interface a developer must be able to select dashboard components (e.g., a graphic widget, pie chart, graph, or table), position the components on a screen/report layout, resize the

components, and specify the data elements linked to the components. Integration (with the solution set) means:

- 1) Shared Queries—The data elements available for linking to dashboard components will be derived from queries created in the same way that they are created for the Report Writer and Business Intelligence products. Queries must be interchangeable between these products.
- 2) Interface Linking—It must be possible to link the dashboard components to reports created with the Report Writer and Business Intelligence products to support "drill-down" analysis of underlying data.

You can provide all users and authors with a single, self-serve product for complete enterprise reporting that covers business, production, and dashboard requirements. You can reduce the complexity of your enterprise reporting environment, while offering secure reporting coverage against all data sources.

Dashboard development with Cognos 8 Business Intelligence, built on the proven ReportNet™ architecture, offers a single GUI-based authoring solution for all types of enterprise reporting:

- § Dashboards
- § Pixel-perfect production reports
- § Managed reports
- § Ad hoc queries

Cognos 8 BI cuts the time to create and interpret dashboards. Business users do not have to understand database logic and computer languages. Dashboarding with Cognos 8 BI lets authors create dashboards by dragging and dropping both data and format elements on a "blank page". Dashboard objects (e.g., gauges, graphs, charts, tables, images, etc.) are arranged hierarchically in the dashboard. Just like a word processor document or Web page, the recipient's dashboards are automatically resized to fit the output format and medium. Through adaptive flow authoring, Cognos 8 BI dashboarding allows users to:

- § Create and modify dashboards with flexible zone-based layout that adjusts to fit different elements and objects.
- § Author and work with all dashboard types and expand the base of potential users for each dashboard.
- § Create and deploy a single dashboard that can be executed across multiple languages and output formats such as HTML, PDF, and Excel.
- § Build dashboard templates that include standard dashboard objects, queries, and layouts.
- § Dashboarding with Cognos 8 BI lets you author and use dashboards containing a wide range of drag-and-drop dashboard elements and layout options.

These include:

- § Out-of-the-box, customizable dashboard objects: lists, cross-tabs, gauges, maps, prompt controls, calculations, HTML objects, images, and other chart types.
- § Embedded linkable objects in authored dashboards.
- § Discrete control over presentation and query layers.
- § Multiple logical pages.



§ Conditional, data-driven formatting and layout.

4.6.17. GUI Based Query Creation: The solution must provide a GUI for end users that allows users to create new (and modify existing) queries through a drag and drop process. The GUI must display a list of defined objects that can be included in the query as result elements and filters. End users must not be required to enter SQL syntax to create queries. End users must not be required to specify table join fields or relationships which should be predefined by the system developer.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.19** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.18. GUI Based Query Development: The solution must provide a Graphical User Interface (GUI) for query development by power users. This GUI will allow a user to build a database query without requiring the power user to provide SQL, database field names, or data sources. The power user will be able create and execute queries via either a drag-and-drop, or a pick-and-click interface.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.20** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.19. GUI-based Report Design and Layout: The solution must provide a GUI for end users to specify report layout and formatting options. End users will be able to add, move and delete columns, specify row sorts, specify row groupings, and change other layout options via a drag-and-drop, or pick-and-click interface.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.21** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.20. GUI Capabilities - Power User Interface: The solution must provide a graphical user interface (GUI) for report layout/design for use by a power user. The GUI must allow a power user to specify the format of reports and report elements, including the segmentation of reports into header, body, and footer; grouping; filtering/parameterization; sorting; graphing/charting; mapping, and the selection of data elements from supported data sources.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.22** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.21. GUI Capability—Add Data Filters to Reports: The solution must allow the specification of data filters via a GUI.



Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.23** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.22. GUI Capability—Specify Sort Criteria: The solution must provide the ability to specify sort criteria via a GUI.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.24** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.23 Individual IDs: The solution must support the use of unique user IDs.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.25** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.24. Monitor and Interrupt Job Execution: The solution must provide functionality for the system administrator to monitor and stop reports or sessions causing performance degradation. When queries are stopped via the tool, all related processes must be terminated in a manner that does not continue to allocate resources to them. Termination of a job should cleanly release system resources such as system memory and temporary disk space.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.26** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.25. Multi-pass Query Support: The solution must be able to retrieve multiple sets of data from one or more data sources, and allow a power user to produce calculations, grids, or graphical displays that leverage data from the different data sources. The solution will allow the power user to specify the elements from each result set that are related.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.27** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.26. Pagination Control: The solution must provide the ability to specify pagination rules for printed reports. As an example, users may wish to prevent groups of data from breaking across pages.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.28** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.27. Prompt Formats: The solution must allow report developers the ability to choose parameter type options through a point-and-click interface. The solution shall support the following parameter types: checkboxes, drop-down lists, free text fields, radio button groups, and list boxes.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.29** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.28. Report Distribution via Single Reference/file: The solution must provide the ability to create a single file or link that contains all report components including report parameters for a single file in a format that can be transmitted electronically/migrated from one server to another. This will allow one office to create a report and easily share it with other offices. This would also allow the migration of reports from development environments/servers to test or production environments.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.30** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.29. Report Grouping and Organization: The solution must provide an ability to save reports to a secure hierarchy of folders. Access to folders will be restricted based on role and permissions. Users with proper access rights shall be able to create subfolders within folders to which they have access.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.31** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.30. Reports Must Support Multiple Output Formats: The solution must support displaying multiple graphs/charts and data tables on the same page of a report or dashboard. It must be possible to simultaneously represent the same data/result set using different output types. For example, the same data/result set could be represented in a line graph and a tabular table on the same page of a report. This must be supported without the need to re-execute the query for each display type. It must also be possible to display report components (graphs, maps, tables, etc.) from separate queries on the same page of a report. For multi-page reports, it must be possible to repeat graphic displays as part of the page header in a manner that reflects the summary values of the entire data set while the individual page provides detail at a lower level. It must also be possible to repeat graphic elements as part of group headers in a manner that reflects the summary (or detail) values for a particular subset of the report's data.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.32** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.31. Role Based Authorization: The solution must support the assignment of access rights to specific reports or functionality to users based upon roles/groups they have been assigned to. It must be possible to override the role based rights for individual users.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.33** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.32. Shared and Reusable Report Components: The solution must maintain a library of report objects that can be shared among users. These objects must include report templates (with defined formatting and prompting), and defined filters allowing for collaboration among groups. Users must be able to retrieve these objects, edit them, and apply them to reports they create or edit.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.34** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.33. Sorting—Basic: The solution must allow users to sort and resort result sets in ascending or descending order through the product GUI.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.35** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6 Dashboard/Scorecard Tool Requirements Desirable Capabilities

4.6.34. Blocking of Cartesian Products: The solution should be able to detect and block execution of queries that would produce Cartesian product results.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.45** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.35. Invoke Report from Another Web Application: The solution should be able to support embedded reporting needs. Specifically, it should be possible to invoke API calls to the solution toolset from within another Web application. From these API calls it should be possible to:

- 1) start reporting tool;
- 2) validate user ID with transparent (non user prompted) login—unencrypted passwords cannot be passed between the originating application and the reporting solution;
- 3) invoke a specific predefined report with parameter pass thru; and,
- 4) prevent the users from invoking other reports during this session.



Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.41** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.36. Ability to Enter Custom SQL for Value Lists: The solution should allow report developers to modify or create SQL statements that will populate the selection boxes or text boxes associated with a specific parameter.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.01** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.37. Ability to Save Prompt Values: The solution should allow report developers and end users to set "default" selections for prompt values along with reports. Developers should have the option to save a copy of the report with the parameter selection values "fixed" so that the "flexible" report can be used for a more specific need.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.02** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.38. Addition of Data Elements to Reports: The solution should provide the ability to drag and drop selected columns into the report via a GUI.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.03** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.39. Impact Analysis: The solution should provide impact analysis reporting that identifies:

- 1) any reporting object that utilizes a given database table and/or field; and,
- 2) any report that utilizes a given report object.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.40** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.40. Map Linking: The solution should provide the ability to include a link from a map to another map or report data via the Web based GUI so that users can access additional details about the data displayed via the map. The solution should support links which correspond to each boundary defined within a map display. The system developer should be able to define the map levels that correspond to link actions. The system developer should be able to define the link target (report, graph, map, URL, etc.)



Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.42** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.41. Sorting—Custom: The solution should allow a developer to create/identify at least one custom sort order column for each data element that can be used to override default ascending or descending sorts determined by alphabetic or numeric sorting of an element. It should be possible to use this custom sort order for use in both data tables and graphs. It should be possible to use this sort order without needing to display it on screens or printed reports.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.36** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.42. Undo Support: The solution should provide end users with an application button that will back out the last action executed by the user.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.3.38** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.43. Formulas Stored in Metadata: The solution should allow a system developer to store the definition of derived objects in the solution's metadata. When a report that includes a derived/calculated object is run, the solution should retrieve the definition from the metadata. The solution will use the formula stored in the metadata to determine what source elements should be retrieved from the database, and how to use them to calculate the derived object. If the definition of a calculated object is updated, all reports, graphs, filters, etc., that use a calculated object will use the updated object by default.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.15** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.44. 3D Graphing: The solution should support graphing in as many as three dimensions (X,Y,Z).

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.44** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.45. User ID Can Determine Data Source: The solution should be able to process queries against different database servers based upon the user ID authenticated. This should allow separate database

servers to be deployed (with identical database structures) in different physical locations such that a user's query will be executed against the server that contains their region's data.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.43** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.46. Browser-based Ad-hoc Report Creation: The solution should provide ad-hoc browser-based reporting functionality to empower non-technical users to create, modify, and publish reports and charts.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.05** above. Cognos is unique in its ability to deliver one product and one architecture.

4.6.47. Direct SQL Use: The solution should provide for the ability for power user to use SQL directly instead of using SQL generated based upon the application's metadata. It should be possible to enable or disable this feature on a per user basis.

Since all Cognos 8 Business Intelligence capabilities are delivered through the web using one set of common services that provide consistent access to information across multiple sources of data, please review the answer to **4.2.46** above. Cognos is unique in its ability to deliver one product and one architecture.



4.7 ETL Tool Requirements

Required Capabilities

4.7.01. Alerts and Notifications: The solution must provide different ways to notify the status of processes (logs, e-mail, etc.) based on the severity of the problem (success, failed data load, failed data extraction, etc.).

In general, when you execute a build or JobStream, a command window appears and shows progress information. This information is saved automatically as a log file. Depending on the error handling option setting above, a warning or error is generated, and the result is written to the log file, providing a diagnostic audit trail. You can specify the level of detail to include in the log files, and view the log files.

You can view log files from in the Audit window, or directly from the Log directory. If the build or JobStream was remotely executed, the log file is retrieved from the remote computer using Data Manager Network Services on the server.

You can also provide alert and email nodes as part of JobStreams, based on whatever criteria you specify. Alert nodes can write a user-defined audit record of the type ALERT, into the Data Manager audit tables. You can use these records to record specific events that occur during JobStream and build execution. An email node sends event notifications to mail systems using SMTP. For example, you can set up emails to provide notifications when a JobStream has completed or failed. You can also include attachments with emails that can include reports and/or log files.

4.7.02. Applying Multiple Business Rules: The solution must be able to apply multiple business rules to a single row of data retrieved via a single pass through a data source.

Cognos applies rules within a variety of locations, and may apply multiple business rules to a record. Dozens and dozens of functional rules may be applied to a single record; even looping through the record recursively is supported. Specifically, rules may be applied to change source data based upon the following characteristics;

Attribute

An attribute element holds additional information that is not a dimension or measure, but that may be of interest. Attributes differ from measures in that they cannot be aggregated.

Derivation

A derivation element is a value that Data Manager calculates rather than obtains directly from the source data, using an expression that you define.

Dimension

A dimension element contains data that is used to give context to a measure element. For example, a product number dimension element gives context to a quantity measure element.

Note: Dimension elements provide the link to the dimensional framework.

Derived Dimension

A derived dimension element allows dimensional lookups to be performed against reference structures. The lookup value can be obtained from a previous lookup or calculated using a derivation.

Measure

A measure element is a value that holds a piece of information for analysis, such as units, revenue, or cost.

When Data Manager performs aggregation, it consolidates measures and derivations along dimension elements.

4.7.03. Audit Control: The solution must provide the ability to log and report all actions executed, whether a success or a failure.

All ETL actions are logged by default to a file as configured by the administrator. See “Save Execution Information to a Log File” in the Data Manager Users guide for more information. Execution information can be logged with varying levels of detail, as shown here:

Execute Build

Options

Execution mode :
 Normal
 Normal
 Object Creation
 Check Only

☐ Submit only

☒ Pause on completion

Deliver

☒ Fact
☒ Dimension

Trace

☒ Override build settings

☒ Progress
☐ Detail
☐ Internal
☐ SQL
☐ ExecutedSQL
☐ User

Message frequency (Input) : 5000
 Message frequency (Output) : 50000
 Message frequency (Domain) : 10000

Command line

"c:\program files\cognos\c8\bin\databuild.exe" -P "ODBC"
 "DSN=ds_sandbox;DBMS={other}" "3600" -XFD -VTRACE_VALUES=PROGRESS
 -VTRACE_FREQUENCY=5000 -VOTRACE_FREQUENCY=50000
 -VMEMBER_FREQUENCY=10000

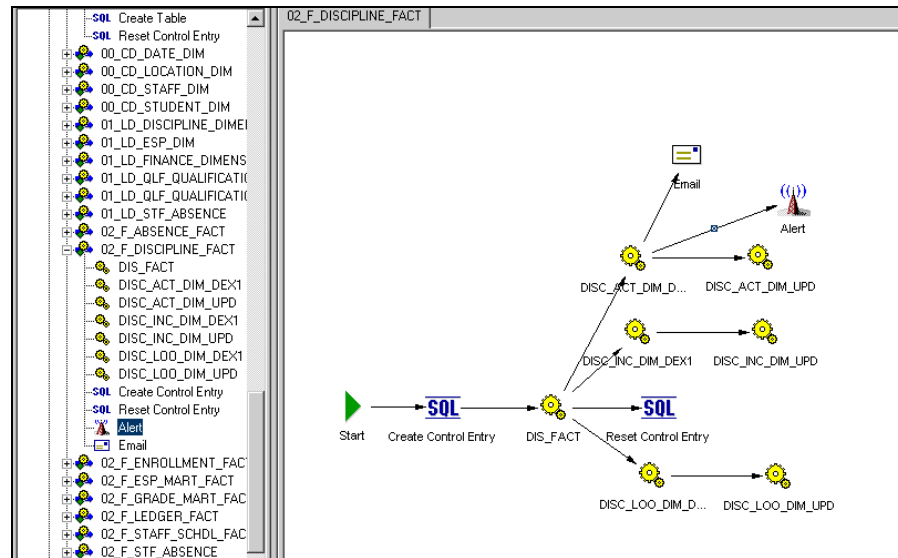
Additional options :

OK Cancel Help

4.7.04. Data Error Handle: The solution must be able to distinguish and report different types of data errors (values out of range, duplicate records, etc.).

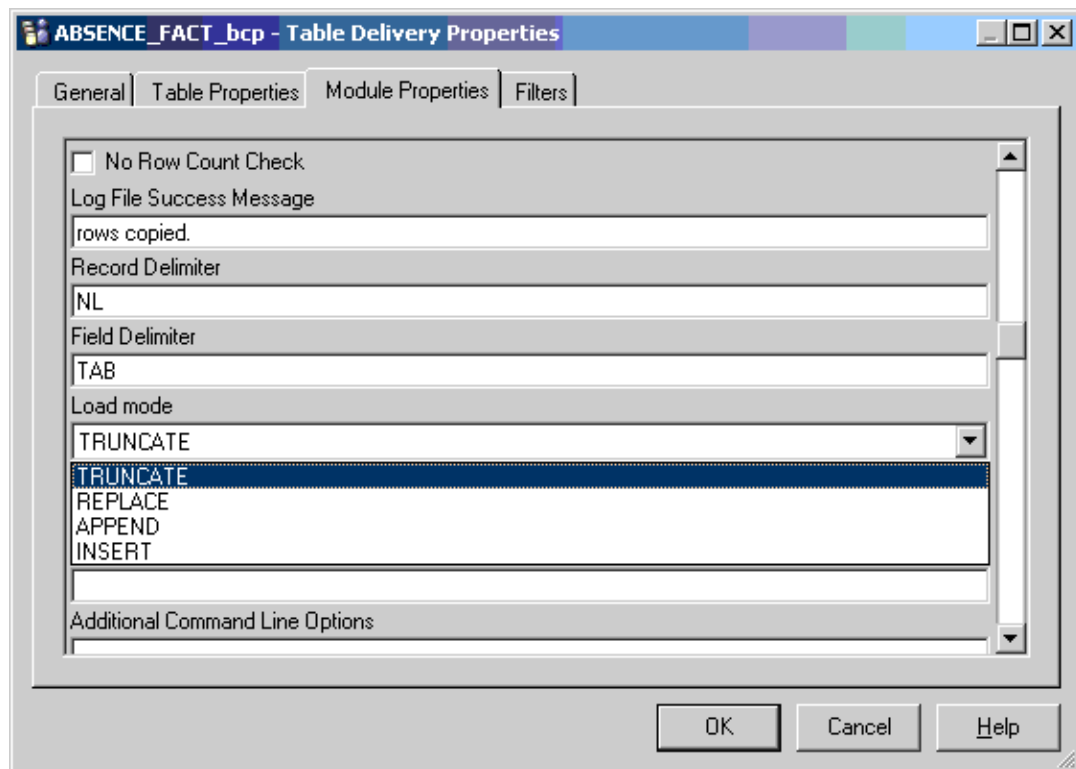
Cognos ETL can be configured to distinguish and act on different types of data errors differently. Based on the type of error, Cognos ETL can perform compensatory actions, or issue email or alert

notifications as configured by the user. In this screen shot, email and alert actions are taken based on different failures in other nodes:



4.7.05. Data Load Methods: The solution must support the loading of data targets via append, replace, or partial updates of existing records.

“Load mode” in the following screen image shows that Cognos ETL does handle this type of specification:



4.7.06. Data Type Conversions: The solution must provide data type conversions (between strings, numeric, and date data types).

Cognos 8 Data Manager provides a variety of conversion functions for converting from one data type to another. A partial list of these functions is given below:

- § SetTimeZone - Sets a date or time to a date or time in a time zone.
- § ToChar - Returns the string representation of a value.
- § ToDate - Converts a string (of optional format) to a date or a date time.
- § ToDouble - Converts a value to a double-precision, floating-point number.
- § ToHex - Converts a value to a hex string.
- § ToInteger - Converts a value to a number of type INTEGER.
- § ToIntervalDS - Converts a string (of optional format) or a number (representing a number of seconds) to a day to second interval.
- § ToIntervalYM - Converts a string (of optional format) or a number (representing number of months) to a year to month interval.
- § ToNumber - Converts a value to a number with a specified precision and scale.
- § ToTime - Converts a string (of optional format) or a number, representing seconds from midnight, to a time.
- § ToTimeZone - Converts a date with time zone or time with time zone to a date or time value in a different time zone.

4.7.07. Data Validation: The solution must provide for a check of data validity according to business rules. This includes checks of data format, cross checks of data in reference/lookup tables or dimensions.

All manner of data validity checking are supported by Cognos ETL, including data format and data type, and cross-referencing data against lookup tables in a DB or file.

Within the dimensional framework there is a reference explorer that lets IT view and validate hierarchies within dimensions. The reference explorer has a graphical interface so they can quickly see the structure of the hierarchy for a given dimension.

It will also report any discrepancies found in parent-child data relationships, and detect issues around multiple parents, and foster children. IT can then resolve these issues before loading data into the warehouse.

This capability is unique to Cognos data integration and ensures the integrity and accuracy of the dimensional data delivered to the warehouse.

As it pertains to a warehouse, referential integrity means that for each foreign key in the fact table an entry exists in the corresponding dimension table. Cognos data integration automatically checks for this during the processing of the fact table and lets the system capture any transactional records coming through that do not have an associated dimension row. In this way, Cognos data integration ensures that companies build accurate and consistent dimensional information and maintain fact table integrity.



When you execute a fact build, Data Manager takes the rejected data that violated the referential integrity of one or more of the dimension elements and saves it in a separate file.

You can specify the action that Data Manager should take when it encounters particular situations. Data Manager always writes a message to indicate that a situation has occurred, even if individual occurrences are not written.

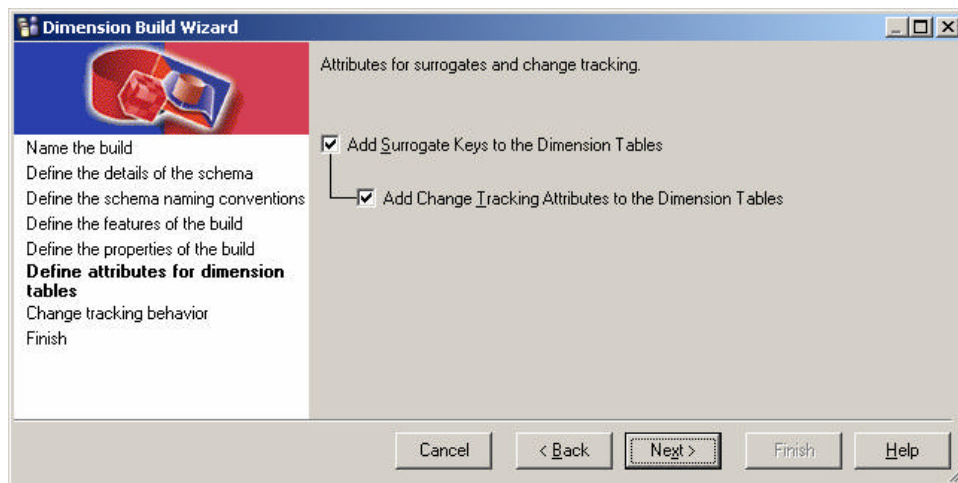
4.7.08. Dimensional Model support: The solution must be designed to support loading of data into dimensional tables. The solution must be designed to validate data loads against dimension tables.

With data integration capabilities from Cognos 8 BI, companies support the design of the dimensional model and automate the majority of tasks associated with maintaining an enterprise data warehouse. At the core of Cognos data integration is a dimensional framework that builds and manages conformed dimensional data warehouses that are the foundation for Cognos business intelligence.

Cognos data integration shifts the complex process of managing surrogates and Slowly Changing Dimensions (SCD's) from the data warehouse developer to the ETL tool. Templates automate the maintenance of surrogates and SCD's. The members of each dimension have attributes that identify each member and provide other information (for example, product dimension has product, name, color, weight, and size). If a district is tracking changes over time, attributes for the dimension and fact table can be set to determine automatically the next surrogate value to be used and places the surrogate key in the fact table.

Dimensional support is a critical part of the Cognos ETL design. Specific constructs directly related to dimensional loading include:

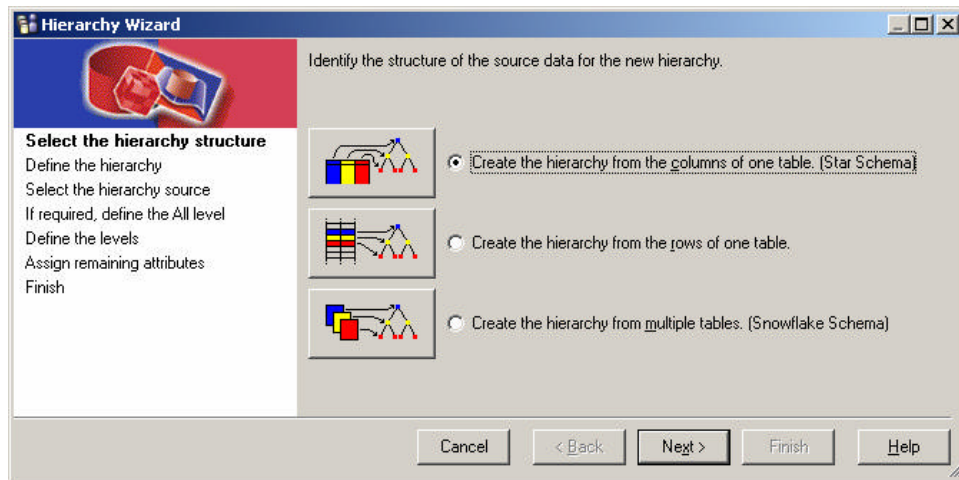
Dimension Build Wizard: tells the ETL process how to account for Slowly Changing Dimensions (types 1, 2 or 3):



Hierarchy wizard: tells the ETL process how to assemble the dimension's hierarchies, including:

- Dimensional Levels that exist as columns in a table
- Dimensional levels that exist as rows in a table
- Dimensional levels that exist in multiple tables

- Other characteristics.



Fact loads then are validated against those dimensions of course, as dictated by the ETL administrator:

- How to deal with records that lack a dimensional match
- How (or if) to merge duplicate facts or dimensions
- How often to refresh both the fact and dimensional data

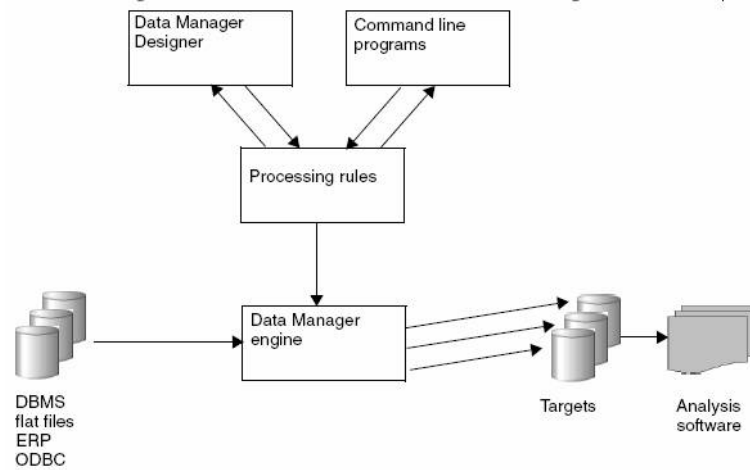
4.7.09. Handle Multiple Projects: The solution must be able to handle multiple independent projects concurrently. Each project will have a different target data store and will likely have different source data stores.

A Data Manager project controls the acquisition, transformation, and delivery of data. Data Manager lets you store projects:

- § in text files
- § in a catalog that resides in a database
- § in packages

Data Manager has the ability to handle multiple independent projects concurrently. In Data Manager Designer, you use builds to specify a set of processing rules that determine how Data Manager acquires data from the source databases, transforms the data, and delivers it to the target database. This information is stored in a Data Manager catalog. You then execute the builds using the Data Manager engine that can be either on UNIX or Windows.

The following illustration shows a model of the Data Manager architecture, demonstrating .



4.7.10. Handling Null Values: The solution must be able to process null values, and optionally substitute nulls with a specified value.

There are a variety of options for handling null values. You can choose any of the following options:

- § Accept – Accepts the null/empty caption
- § Warn – Accepts the null/empty captions and writes a message to the log file stating that they were encountered
- § Reject – Rejects any data that has a null or empty value
- § Reject/Warn – Rejects any data that has a null or empty value and writes a message to the log file
- § Error – Issues an error message and stops executing the build if null or empty values are encountered
- § Replace – apply any functional logic, including but not limited to a simple replace, to convert the NULL to something else.

4.7.11. Integrity Check: The solution must provide for a check of data integrity according to business rules. This includes cross checks of data within a record, as well as data in reference tables or dimensions.

Within the dimensional framework there is a reference explorer that lets IT view and validate hierarchies within dimensions. The reference explorer has a graphical interface so they can quickly see the structure of the hierarchy for a given dimension.

It will also report any discrepancies found in parent-child data relationships, and detect issues around multiple parents, and foster children. IT can then resolve these issues before loading data into the warehouse.

This capability is unique to Cognos data integration and ensures the integrity and accuracy of the dimensional data delivered to the warehouse.

As it pertains to a warehouse, referential integrity means that for each foreign key in the fact table an entry exists in the corresponding dimension table. Cognos data integration automatically checks for this during the processing of the fact table and lets the system capture any transactional records coming through that do not have an associated dimension row. In this way, Cognos data integration

ensures that companies build accurate and consistent dimensional information and maintain fact table integrity.

Any functional logic may also be applied to data, to ensure integrity. Cognos offers scores and scores of extensible functional logic, which can be applied to any data before it gets written to the target database.

4.7.12. Job Monitoring: The solution must support build or job monitoring in a graphical environment of current and historical performance.

When you execute a JobStream, the following statistics are produced and available for analyzing the load process:

- § Timing records overall timing information.
- § Transform records information about the data processed.
- § Rows received from the data sources. This information is available for fact builds only.
- § Deliver records information about data delivery.
- § Internal records information about the internal measures of performance.
- § Alert records provide automated guidance on fact builds, dimension builds, and JobStreams.
- § User records user-controlled audit messages. This information is available for fact builds, dimension builds, and JobStreams.

Any of this information can be reported on by the Cognos BI reporting tools, or viewed through the audit window.

4.7.13. Metadata-based Business Rules and Dimension Definition/storage: The solution must allow users to create and manage all BI metadata and business rules in a metadata repository that supports the process of building and managing conformed dimensions.

In Cognos, a central repository of metadata is critical to our vision of integrated, centralized Performance Management. As such, we provide this central repository in which all metadata and business rules are defined only once, and shared between ETL and Business Intelligence capabilities. Specifically, Cognos users will:

- Build ETL within Cognos
- Specify business rules, documentation, dimensions and descriptors surrounding those constructs
- Publish those ETL constructs to the web as end-user metadata
- Use that metadata to facilitate end-user reporting.

4.7.14. Process Deployment: The solution must provide integrated deployment management, such as the ability to promote an object or job from development to test to production, etc.

A component package can contain as many catalog components as you require. Catalog components are connections, builds, reference dimensions, reference structures, JobStreams, templates, functions, metadata dimensions, and metadata collections.

When you create a component package, Data Manager lists all the dependent components in the catalog which must also be included in the package. However, when you import the component package into the target catalog, you can choose whether to include these dependent components, or use existing components in the target catalog.

You can import components from a component package (*.pkg) file to partially restore a catalog or integrate work into a test or production catalog. You can also import components from a catalog backup (*.ctg) file using this method.

4.7.15. Scheduling: The solution must provide a mechanism to schedule automatic processing of ETL jobs based upon time or event based triggers.

Users develop JobStreams with Cognos 8 BI through a graphical interface that coordinates these processes. The JobStream coordinates groups of builds, processing instructions, conditions, and SQL into an operational process. JobStreams are scheduled like any other program, which supports a remote and unsupervised approach to the process.

4.7.16. Slowly Changing Dimension Support: The solution must support data updates required to accommodate slowly changing dimensions.

Tracking attribute changes is a technique for managing historical data. It allows you to maintain dimensions for which non-key attributes can change over time without corresponding changes in the business key. For example, employees may change their department without changing their employee number.

Each column that you include in a dimension table corresponds to a dimension attribute. These columns can either overwrite attribute changes or track attribute changes. When you add a column it is automatically set to overwrite attribute changes. However, you can change this to track attribute changes if you require.

You set up attribute change tracking from the Columns tab in the Dimension Table Properties window.

You overwrite attribute changes when historical values are not required. This is known as a type 1 change. For example, an employee's address may change but there is no business requirement to track previous addresses. All customer records containing the address are updated with the new address.

You track attribute changes when you want to keep a record of historical values. For example, when an employee is moved from department to department, all old transactions should remain in the old department, and only new transactions should relate to the new department.

4.7.17. Star Schema Support: The solution must support the loading of data into databases that utilize a star schema design.

Cognos supports star schema design readily and most commonly, and also supports snowflakes, federated, and other variations of the Star Schema.

Hierarchies can be created both at the ETL layer, Metadata Layer and OLAP modeling layer. Hierarchies are used for common dimension reporting and drill down using the Cognos interfaces. Simple drag and drop techniques are used for stacking data hierarchies.

You can specify the level to which measure items such as dollars, counts, sums, etc. aggregate to dimensions such as department, location, period, etc. thus enabling finite control over granularity.

The design of the warehouse follows a Star Schema and/or Snowflake design. The warehouse is made up of shared/conformed dimensions along with fact tables to fast reporting and linear analysis. Cognos Data Manager can create virtually any level of normalization of design, according to the need of the client.

The star schema is perhaps the simplest data warehouse schema and is mainly used for query and reporting purposes. Data can be delivered to a single table; it can also be partitioned horizontally, vertically, or both. Data Manager integrates with Cognos Business Intelligence tools by delivering metadata in a star schema format to the full Business Intelligence suite.

4.7.18. Surrogate Key Management: The solution must provide automated support for the generation and management of surrogate keys.

Cognos automatically supports surrogate key management.

Cognos data integration shifts the complex process of managing surrogates and SCDs from the data warehouse developer to the ETL tool. Templates automate the maintenance of surrogates and slowly changing dimensions. The members of each dimension have attributes that identify each member and provide other information (for example, product dimension has product, name, color, weight, and size).

If a company is tracking changes over time, attributes for the dimension and fact table can be set to determine automatically the next surrogate value to be used and places the surrogate key in the fact table.

4.7.19. Transformation Functions: The solution must provide transformation functions for strings (substring, case change, etc.), numerics (arithmetic, Boolean, group, etc.), date and time, derivation, calculations, allocations, and aggregations.

Data Manager provides predefined functions and operators that you can use, with the Data Manager scripting language, in derivations, derived dimensions, delivery output filters, variables, DataStream filters, and in JobStream procedure and condition nodes.

Functions may take zero, one, or more parameters and return a single value.

Data Manager provides the following transformation related function types:

conversion	member
control	text
logical	date
mathematical	SQL cursor

Please refer to The Function and Scripting Reference Guide, which describes the Data Manager functions and the scripting language that you can use within the engine or from Data Manager Designer.

4.7 ETL Tool Requirements

Desirable Capabilities

4.7.20. Automated Support of Late Arriving Facts: The solution should provide support for the automated processing of late arriving facts (and dimensional history).

Cognos normally delivers fact data by using the business key and retrieves only the current reference record from the reference data. If the fact data contains late arriving facts, the result may be that fact records are delivered with incorrect reference data.

For example, if sales records are delivered at the end of a month, and a reference record was updated during that month, fact records will be delivered using the current reference data.

By using late arriving fact processing, data can be delivered using the surrogate key instead of the business key. This has the advantage that, if the reference data tracks attribute changes, the history of changes to the data can be retrieved.

Note: You must load the dimensional history before you can process late arriving facts. For information, see [Reject Late Arriving Dimension Details](#).


You can specify how late arriving facts are processed, so that fact records can be delivered using the appropriate surrogate key:

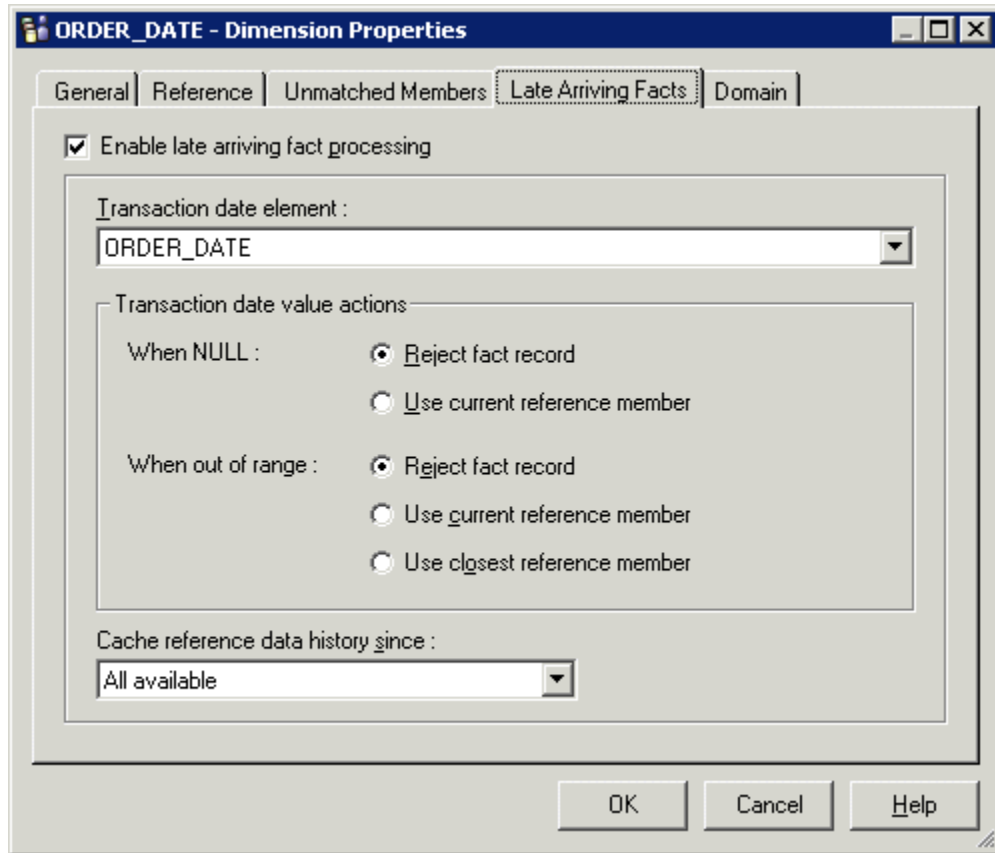
- If the timestamp in a fact record falls within the range of dates for the corresponding reference data, the appropriate data is selected from the reference data and the record is processed. You do not need to specify any further action to be performed on the record.
- If the timestamp in a fact record contains a null value, you can choose one of the following actions to perform on the record:
 - Reject fact record (default)
 - Use current reference member
- If the timestamp in a fact record is outside of the effective date range for the reference data, you can select one of the following actions to perform on the record:
 - Reject fact record (default)
 - Use current reference member
 - Use closest reference member

To allow late arriving fact processing on a dimension, the following conditions must be met:

- the fact build must not merge data
- the fact build must not include any dimension deliveries for the dimension
- the dimension must use a lookup
- the lookup must include an attribute with effective start date behavior
- the lookup must use a template for data access

Steps

1. Click the dimension element or derivation element for which you want to specify how to process late arriving facts.
2. From the **Edit** menu, click **Properties** .
3. Click the **Late Arriving Facts** tab.



Note: If the conditions for processing late arriving facts are not met, a message appears indicating this, and the following steps are not available.

4. Select the **Enable late arriving fact processing** check box.
5. In the **Transaction date element** box, click the transformation model element that corresponds to the timestamp value in the fact records.
6. In the **Transaction date value actions** box, specify the action to perform on records containing late arriving facts.
7. The **Cache reference data history since** box allows you to limit the records processed for late arriving facts to a specific date range. This restricts the domain of reference members to include all current attribute change tracking records and those non-current records that are later than the specified date. Click
 - **All available** to specify that all available records should be processed.

- **Current record only** to specify that only current records should be processed.
- **Variable** to use the variable from which to obtain the date and time, and then in the adjacent box, type the variable name.
Note: The variable must be defined on the **Variables** tab. For information, see [Variables](#).
- **Date (yyyy-mm-dd hh:mm:ss)** to specify an explicit date and time from which records should be processed, and then in the adjacent box, type the date and time.

8. Click **OK**.

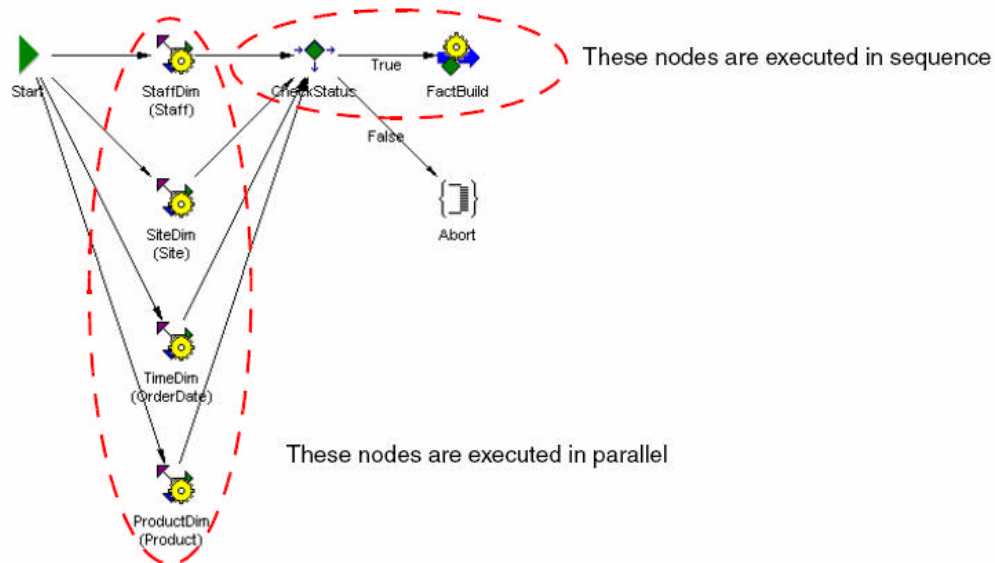
4.7.21. Job Management: The solution should provide the ability to manage all ETL processes, on a single or across multiple servers, from a central point, and provide the ability to delegate management of selected processes to other departments or locations.

You can automate tasks related to managing the build process by creating a JobStream to contain a series of steps. For example, a JobStream can

- § coordinate fact and shared dimension builds
- § prefix dimension builds with staging builds
- § perform pre and post processing SQL
- § set different arrival rates of source data
- § distribute tasks over multiple processors
- § customize application logging
- § provide build status

A JobStream contains a node for each step in a process, which can be a fact build, dimension build, SQL statement, condition, procedure, alert, email, or another JobStream. Each JobStream can use any number of these nodes.

You link the nodes together to create a flow to instruct Data Manager of the order in which each node is to be processed. Each JobStream can have a single flow or multiple flows. Data Manager can execute a JobStream in sequence or in parallel.



JobStreams can be executed on your local computer, or on any number of coordinated remote computers. Execution may also be trigger-based, or delegated to any number of departmental administrators.

4.7.22. Pipelining Transformations: The solution should have the ability to pipeline transformations to allow combining into larger logical transactions.

Data Manager provides a powerful pipelined transformation engine which reads the data in a single pass, delivering high throughput. Transformations can be created, and subsequently pipelined into larger, logical, transactions.

4.7.23. Reusable Transformations: The solution should allow the creation and use of stored transformation templates.

The transformation model is central to a fact build. You use it to manipulate the acquired source data in a number of ways, such as merging data from different sources and aggregating data.

The transformation model contains the elements of transformed data. You can create these element types:

- § attributes
- § derivations
- § dimensions
- § derived dimensions
- § measures

Once created, a transformation model can be stored as a template and reused in other transformations.

4.7.24. Date/Time Stamping: The solution should provide for the accurate and effective time-stamping of data being loaded either by using standard DBMS features or separate solution functionality.

Data Manager has the ability to maintain a run history, a history of fact loads etc, where by default the start timestamp is record, the elapsed time, run mode, type of refresh, rows inserted, rows updated are all recorded., in addition there are capabilities to manage a JobStream process to either continue on error, or to abort. You can also expand on the conditional node capabilities that exist within a JobStream. In addition higher levels of auditing and logging can be controlled by the designer.

In addition to these functions, there is a set of SQL cursor functions that allow you to prepare an SQL statement for execution, open a cursor for the statement, collect data from it, and then close the cursor. The purpose of these functions is to enable multiple processing of rows and columns of data.

4.7.25. Impact Analysis: The solution should provide impact analysis of changes to processes or job streams.

Cognos supports this requirement. When designing an ETL routine, Cognos will inspect the existing target database(s) and prompt the user how to address any changes to table and column definitions.

When you execute a JobStream, a command window appears showing the progress of the JobStream execution process. As each node is processed it returns progress information to the log file and audit tables.

If, during execution, Data Manager encounters a problem with a node, the execution process may fail. You can specify the action that Data Manager is to take if this happens. When any problems have been resolved you can restart the JobStream starting with the node that failed.

When you execute a JobStream, you can

- § set the level of audit and logging information recorded
- § specify how to handle any errors that may be encountered while processing a node
- § exclude nodes from processing
- § restart processing a JobStream

The Audit window shows the full audit history for the selected build or JobStream. From the Audit window, you can choose to view audit trail details, audit messages, and JobStream details. You can also access the audit tables using reporting tools.

The audit history provides information for each occurrence of a build or JobStream execution. You can specify that these types of information are recorded:

- § Timing records overall timing information. For example, the start, end, and elapsed times for the execution process.
- § Acquire records information about the source data acquired. For example, the number of data rows that each data source contributes.
- § Transform records information about the data processed. For example, the number of data rows received from the data sources.
- § Deliver records information about data delivery. For example, the number of data rows delivered.
- § Internal records information about the internal measures of performance. For example, the size of the hash table.



- § Alert records a user-defined audit record of type ALERT, into the Data Manager audit tables.
- § User records user-controlled audit messages.

The execution process can be performed locally or remotely. If a JobStream calls itself during execution, each execution is listed separately. You can use a filter to restrict the list of execution processes to those performed:

- § in the last 24 hours
- § in the 7 days
- § in the last month
- § in the last 3 months
- § in the last year

5.0 Supporting Materials

The vendor is encouraged to provide supporting materials, including more detailed descriptions of their solution that would clarify or enhance the succinct answers provided in response to Sections Three through Four.

References to supporting materials in the responses are encouraged; however, supporting materials should be neatly organized and indexed to allow easy location of the specific references. Vendors should provide copies of their proposed software license agreements and software technical support agreements.

The entire response to the RFP may not exceed what can be included in one 2" three ring binder.

Read and Understood

6.0 Contact and Submission Information and Timeline

6.1.1. Submission Requirements: Proposals must be received by the posted due date and time. Proposals received after the deadline will be late and ineligible for consideration.

Read and Understood

6.1.2. Preferred Method for Submitting Your Proposal: The preferred method of submitting your proposal is electronically through RFP Depot. RFP Depot is at the following Internet URL:

<http://purchasing.utah.gov/BIDProcessing/CurrentBids.asp>.

However, if you alternatively choose to submit your proposal in hard copy format, vendors must submit one original and seven (7) identical copies of your proposal must be received no later than (NLT) 3pm Wednesday, February 7, 2007, at the State of Utah Division of Purchasing, 3150 State Office Building, Capitol Hill, Salt Lake City, Utah 84114, prior to the closing date and time specified. Also, if you submit your proposal in paper form, please also provide one (1) CD electronic Adobe. PDF or Microsoft Word file format of your proposal that can be used to build the contract. Proposals received after the February 7, 2007 deadline, either via RFP Depot or in paper form, will be late and ineligible for consideration.

Read and Understood

6.1.3. Questions about the RFP: All questions must be submitted through RFP Depot at Answers will be given via the RFP Depot site. Questions received after January 26, 2007 may not be answered.

Read and Understood

6.1.4. Discussions with Offerors (Oral Presentation): An oral presentation by the Offeror to clarify a proposal may be required at the sole discretion of the State. However, the State may award a contract based on the initial proposals received without discussion with the Offeror. If oral presentations are required, they will be scheduled after the submission of proposals. Oral presentations will be made at the Offerors expense.

Read and Understood

6.1.5. Offeror's Response to the Proposed T&C's: Offeror proposals must either: (1) indicate vendor acceptance of the State and DTS T&C's exactly as presented in this RFP, or (2) if the vendor is proposing different terms and conditions, the vendor proposal submitted in response to this RFP must specifically list word for word the vendor's proposed wording for the specific T&C change requested as the vendor would like them to read.

Notwithstanding anything to be considered contrary herein or exclusive in this Proposal, in connection with its response to the State of Utah – Department of Technology Services (DTS) Solicitation #JG7023 *Enterprise Reporting and Business Intelligence Software* dated January 19, 2007 and in lieu of the proposed Terms and Conditions and any other special terms and conditions set forth in the RFP, Cognos has attached its standard and Cognos General Software License, Support & Services Terms ("Terms"). In the event that Cognos is selected for this opportunity it agrees to negotiate in good faith any changes to the Terms requested or required by the State of Utah DTS and such negotiated terms shall govern the license and use of the Cognos software and any related services as may be contemplated by the RFP.

6.1.6. State's Option to Reject Proposals with Material T&C Deviations: If the offeror's proposed terms and conditions materially deviate from the State's proposed State and DTS contract terms and conditions, the State of Utah reserves the right to reject the vendor's proposal for this reason, and make the contract award to the next highest scoring vendor's proposal.

Read and Understood

6.1.7. Offeror's Right to Negotiate Changes to Proposed T&C's: Minor deviations in contract terms and conditions proposed by vendors may be negotiated following issuance of the State's proposed contract award letter.

Read and Understood

6.1.8. Proprietary Information: The Government Records Access and Management Act (GRAMA), Utah Code Ann., Subsection 63-2-304, provides in part that:

the following records are protected if properly classified by a government entity:

- (1) trade secrets as defined in Section 13-24-2 if the person submitting the trade secret has provided the governmental entity with the information specified in Section 63-2-308 (Business Confidentiality Claims);

- (2) commercial information or non-individual financial information obtained from a person if:
- (a) disclosure of the information could reasonably be expected to result in unfair competitive injury to the person submitting the information or would impair the ability of the governmental entity to obtain necessary information in the future;
 - (b) the person submitting the information has a greater interest in prohibiting access than the public in obtaining access; and
 - (c) the person submitting the information has provided the governmental entity with the information specified in Section 63-2-308;
- (6) records the disclosure of which would impair governmental procurement proceedings or give an unfair advantage to any person proposing to enter into a contract or agreement with a governmental entity, except that this Subsection (6) does not restrict the right of a person to see bids submitted to or by a governmental entity after bidding has closed;

To protect information under a Claim of Business Confidentiality, the Offeror must:

- Provide a written Claim of Business Confidentiality at the time the information (proposal) is provided to the State, and include a concise statement of reasons supporting the claim of business confidentiality (Subsection 63-2-308(1)).
- Submit an electronic “redacted” (excluding protected information) copy of your proposal response. Copy must clearly be marked “Redacted Version.”

A Claim of Business Confidentiality may be appropriate for information such as client lists and non-public financial statements. Pricing and service elements may not be protected. An entire proposal may not be protected under a Claim of Business Confidentiality. The claim of business confidentiality must be submitted with your proposal on the form which may be accessed at:

<http://www.purchasing.utah.gov/contractinfo/ConfidentialityClaimForm.doc>.

To ensure the information is protected, the Division of Purchasing asks the Offeror to clearly identify in the Executive Summary and in the body of the proposal any specific information for which an Offeror claims business confidentiality protection as "PROTECTED".

All materials submitted become the property of the State of Utah. Materials may be evaluated by anyone designated by the State as part of the proposal evaluation committee. Materials submitted may be returned only at the State's option.

In non-legalese, this means that the Utah State Procurement Board's recent decision to make all bids, not just the winning Offeror's contract, public information is applicable to Offeror's proposals submitted in response to this RFP.

Read and Understood

6.1.9. Vendors submitting proposals for personal services associated with this RFP must bear in mind that background checks are required for consultants working on-site to install, and configure ER and BI solutions.

Read and Understood



6.1.10. Anticipated Schedule for RFP Review, Evaluation, and Implementation

RFP Released to Vendors January 19, 2007

Questions on RFP will be due on January 26, 2007

Response to Vendor Questions January 31, 2007

Vendor Proposals Due February 7, 2007

Proposals Scored By February 16, 2007

State Purchasing Issues Notice of Intent to Award February 21, 2007

[Read and Understood](#)

ATTACHMENTS

Pricing Spreadsheet:



UT RFP Pricing.xls

Support Agreement:



cognos_support_use
r_guide.pdf

Cognos Standard Software Terms & Conditions:



2006 Enterprise
Terms USA Named Us

Hardware Requirements:



Cognos 8 MR2
Software Environmen

pm2 Scorecarding Information: Cognos is offering a Free Seminar with Brett Knowles as a kick off to the Governor's Scorecard initiative.



Brett Knowles Public
Sector Bio v6.doc



The Five Steps to
Build a BSC v3.pdf



Public Sector - Apl
2004 v4.pdf